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# USSR Report

ECONOMIC AFFAIRS



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## USSR REPORT ECONOMIC AFFAIRS

### CONTENTS

#### INVESTMENT, PRICES, BUDGET AND FINANCE

Finance Ministry Official Views Intensification Program (V.V. Dementsev; FINANSY SSSR, No 6, Jun 85).....	1
Stroybank Chairman Seeks Increased Investment Effectiveness (M. Zotov; PLANOVYE KHOZYAYSTVO, No 7, Jul 85).....	13

#### REGIONAL DEVELOPMENT

Industry Versus Regional Development Coordination Debated (EKONOMIKA SOVETSKOY UKRAINY, No 7, Jul 85).....	25
Aganbegyan Highlights Siberian Development Targets (A. Aganbegyan; KOMMUNIST VOORUZHENNYKH SIL, No 13, Jul 85).....	42

#### GENERAL

Proportionality, Structural Changes in Economy Reviewed (G. Sorokin; PLANOVYE KHOZYAYSTVO, No 6, Jun 85).....	49
Ecology, Resource Utilization Questions Weighed (various sources, various dates).....	61
Environmental Damage Cost-Accounting, by L. Melnik	61
Natural Resources Utilization Policies, by S. Grebenyuk	71
Natural Resources Utilization Infrastructure, by V. Vesnin	75
Special Resources Utilization Programs, by A. Naviyev	83

INVESTMENT, PRICES, BUDGET AND FINANCE

FINANCE MINISTRY OFFICIAL VIEWS INTENSIFICATION PROGRAM

Moscow FINANSY SSSR in Russian No 6, Jun 85 pp 3-11

[Article by V. V. Dementsev, first deputy minister, USSR Ministry of Finance: "Finance in the Service of Production Intensification"]

[Text] The Soviet people are successfully implementing the strategic line for accelerating socio-economic development and improving all aspects of society's life which was worked out at the 26th CPSU Congress and subsequent CPSU Central Committee plena.

The country is completing the 11th Five-Year Plan. During these years it has made a new large step forward to strengthen the Soviet state's economic and defense might, to improve public welfare and to further develop socialist democracy.

The special March (1985) CPSU Central Committee Plenum posed the task of making a decisive turn in switching the national economy to the rails of intensive development. We should and are obligated to rapidly reach the most progressive edge of science and technology and the highest world levels for the productivity of social labor.

Finance in a socialist society is an important instrument in the management system. The party and state finance policies are directed towards supplying the needed resources to grandiose plans for further developing the socialist economy, improving workers' living standards and strengthening the country's defense capabilities.

V. I. Lenin viewed finance as one of the main tools for economic policy and a powerful means for the country's socialist transformation.

The stable growth rates in our economy, the implementation of majestic plans for socialist construction and progress in all areas of economic and cultural life have had a favorable effect upon socialist finance.

Finance and the financial system, guided by the Leninist party and state, are an integral component of the planned organization of public production and throughout the entire economy active work to most completely discover and use



reserves, strengthen thrift and economization. They thus have an effect upon solving the main economic task of our time -- increasing production efficiency and work quality.

At the April (1985) CPSU Central Committee Plenum, which made a thorough analysis of the national economy's condition, it was stressed that no matter which question we examine, or which facet of the economy is approached, in the final account everything is based upon the need to thoroughly improve the management and economic mechanism as a whole.

Specific forms and methods of management, planning and economic stimulation, the essence of which is defined by the economic laws of socialism, remain unchanged. The party's and state's goal directed activities give them new features most appropriate to the real conditions of the economy's functioning and the task it faces.

The decisions of the 26th CPSU Congress make provisions for strengthening the influence of financial-credit tools upon production intensification, consolidating cost accounting and economization, and more actively using them to accelerate the creation and introduction of highly efficient new technology, increase the production of mass consumption goods, mobilize reserves in the economy and liquidate unproductive expenditures and losses.

Under developed socialism the role of finance grows considerably. There are changes in the financial and credit resources structure, methods of their formation and directions of use. Finance and credit ever more actively influence the proportions and pace of economic development and the intensification of public production.

The sphere of finance and credit is expanded due to the deepening of cost accounting relations at enterprises, associations and ministries. A special system of plan, financial and credit relations comes into being because of the tasks in production intensification and improvements in the management of scientific-technical progress.

Financial-credit tools are one of the most important elements in the economic mechanism. They, just as the entire, mechanism, have a direct effect upon production efficiency.

One of the key tasks posed by the CPSU is the economy's intensification based upon accelerated scientific-technical progress. Solutions to this very important national economic problem require further strengthening of finance's effect upon the acceleration of scientific-technical progress and the expansion of basic scientific research.

In recent years in the USSR there has been a steady growth in outlays for science coming from the state budget and other sources. Thus, in the 9th Five-Year Plan they totalled 77 billion (including capital investments) in the 10th they were 97.9 billion, while in the current plan they reach about 128 billion rubles. In 1985, 27.5 billion rubles are being spent on science. For comparison one can note that in 1965 only 6.9 billion rubles were spent for this purpose.

It is essential to remark that resources allocated from the unified fund for the development of science and technology (YeFRNT) have a growing role as sources for financing scientific research.

The use of scientific and technical achievements requires the accelerated renewal of existing fixed productive capital. However, the scales of such renewal are still not sufficient. Present depreciation norms in industry average 5 percent of the value of fixed productive capital, including 7.7 percent for machinery and equipment. According to our calculations, with such norms the coefficient for the withdrawal of fixed productive capital in industry should average 3.5-4 percent, and 6-6.5 percent for machinery and equipment. During 3 years of the current five-year plan the actual withdrawal coefficient was 1.3 percent, including 2.2 percent for machinery and equipment. These are considerably lower than the norm-calculated factors. Insufficient rates for the renewal of fixed productive capital lead to industry's retention of large amounts of worn out and outdated machinery.

In 1975 scientifically based and realistic depreciation norms for renovation were introduced. This made possible sufficient resources for financing capital investments in order to replace fixed capital in amounts appropriate to contemporary scientific-technical requirements. However, there have still not been the necessary changes in equipment use appropriate to economic intensification. There is still a national economic tendency to direct the main share of equipment to fit out new construction and only use insignificant shares for replacing obsolete equipment.

Secondly, there are only slow changes in proportions for distributing more resources to replace equipment, compared to repairs. The insufficient pace of increasing the replacement of obsolete fixed capital causes large and to a considerable extent inefficient outlays for major repairs. This year repair outlays for industry as a whole are about 40 billion rubles (20 billion for major and 20 billion for current repairs). Switching the economy to intensive development requires directing a sizable share of these resources to manufacturing new machinery.

Thirdly, in many cases wholesale prices for new machinery and equipment are growing considerably faster than improvements in their techno-economic parameters.

Consequently, the accelerated renewal of existing equipment is delayed above all by shortcomings in planning this process, its organization, material-technical supply and price formation.

Finance and credit tools and stimuli do not completely influence the accelerated renewal of fixed capital. There are still poor results from depreciation policies, while the system of depreciation allowances is not yet a sufficiently effective economic instrument for regulating the replacement of obsolete fixed capital, although the financial prerequisites for accelerating this replacement have been created.

Obviously, there should be a reexamination and solution to the question about the advisability of establishing norms for depreciation allowances only for renovation, while capital and current repair outlays are directly added to production costs.

In recent years a number of measures have been taken to strengthen the influence of the system of wholesale prices, markups and rebates upon improving enterprises' interest in accelerating the renewal of their output, removing outdated equipment from production and in making stronger demands upon product certification. In accordance with the August 1983 CPSU Central Committee and USSR Council of Ministers decree: "On Measures for the Acceleration of Scientific-Technical Progress in the National Economy", there have been improvements in price formation for new technology. There have also been improvements in the system of markups on wholesale prices for new technology having parameters equal to the better foreign and domestic models. It is foreseen to more extensively use rebates on wholesale prices for outdated output subject to removal from production.

In accordance with the new procedure, incentive markups of up to 30 percent of wholesale prices have been approved. In addition, the markup can take into account up to 50 percent savings. Simultaneously, there are provisions for up to 30 percent rebates off wholesale prices for obsolete output.

In spite of additional economic stimuli, industry is still slow in renewing machinery and equipment now being produced, in introducing highly efficient equipment defining technical progress in the national economy and is not showing sufficient intensity in mastering the production of fundamentally new products. Ministries are not sufficiently current in their recertification work, this has a negative effect upon stopping the production of obsolete output.

Further improvements are needed in the price formation mechanism for production and technical items, primarily machine building products. This applies to the price setting mechanism for mass consumption, which does still not fully give industrial enterprises and associations an interest in the most rapid restructuring of production due to the public's changing demand. The system of contract prices for especially fashionable goods is not sufficiently widespread.

The major construction program under way in our country is of major importance for increasing productive forces, regulating the pace and proportions in the development of sectors and in strengthening the state's defense might. As is known, one-fifth of national income is spent for this purpose. During the 11th Five-Year Plan alone capital investments totalled 811 billion rubles.

Major construction on such large scales requires huge resources. Therefore a sharp turn has been taken to increase efficiency and quality, save direct and embodied labor, considerably increase output capital ratios and shorten the payoff period for capital investments.



In April 1984 the CPSU Central Committee and the USSR Council of Ministers passed a decree "On Improvements in the Planning, Organization and Management of Major Construction." Provisions have been made to improve the efficiency of major construction and to create more favorable economic conditions for technically reequipping sectors.

The decree outlines measures to strengthen financial and credit influence over the achievement of better final results from construction operations and to improve the management of major construction. Special attention is also given elements in the economic mechanism such as improvements in organization, the payment and stimulation of labor, the introduction of more progressive design decisions, the strengthening of construction-installation organizations and construction industry enterprises, the further development of industrial methods in construction and improvements in cost accounting.

There will be a systematic conversion of construction-installation organizations to paying labor for work completion based construction estimates and, on this basis, using the lump wage payment system according to final results (component, installation, project). As a result, payments for labor will depend directly upon the completion of a definite part of the project and the size of earnings in the estimate. Obligatory compensation for overexpenditures is one of the conditions for strengthening financial control over the use of earnings.

Major construction efficiency depends directly upon the proper organization of planning and estimation and its technical levels. As is known, in order to strengthen cost accounting in construction, new estimation norms and prices were introduced on 1 January 1984. They have had a positive influence upon construction organization economics. In 1984 the profit rate for construction-installation work done by contract construction organizations was 12.5 percent. To further eliminate shortcomings and improve construction efficiency it is necessary to strictly economize upon material and financial resources and to manage operations thriftily. Much here depends upon initiative and persistence in implementing decisions concerning major construction and improvements in its financing.

Improvements in the financial and credit mechanism have the greatest effect when there are simultaneous improvements in planning, material-technical supply, payments to labor, and all management elements. It is just this approach which is being taken in the economic experiment now being conducted in 25 industrial ministries.

Improvements in the mechanism for managing the national economy are based upon the further strengthening and development of cost accounting, which now has a number of shortcomings.

The practical guidance of the national economy has always used important principles of cost accounting as tools assisting in the fulfillment of state plans. At the present stage, during the switching of the economy to primarily an intensive development path, there are major increases in as to the quality

of centralized management and to organizing all components' activities on the basis of cost accounting principles. It is also essential to have organizational forms and methods which will most assist in solving economic and social tasks.

Briefly stated, the experiment's goals are to enlist the huge reserves for improving production efficiency present in primary components -- associations and enterprises. New forms and methods for managing finance which are being tested during the experiment are subordinate to this. First of all, I want to dwell upon changes in the system for profit distribution:

The profit distribution procedure in the experiment was developed to solve three main tasks:

Interest enterprises in increasing monetary accumulation on the basis of increased production volumes and improvements in efficiency;

Intensify economic influences over production fund dynamics;

Increase enterprise responsibility over the fulfillment of budget obligations.

Today one can say that these measures have been justified. All 5 ministries which participated in the experiment in 1984 overfulfilled their budget obligations. Financial instruments played a prominent role in the important matter of increasing enterprises' material interest in fulfilling the state plan, the profit plan and strengthening supply discipline.

Of course, the experiment in industry has made new demands upon finance and credit organs. There will be further improvements in this work. We should think more deeply about the possibilities of using five-year norms rather than annual ones for payments to the budget, about sources of financial reserves for enterprises, the propriety of using economic stimulation funds, limits for granting credits and a number of other questions.

Such are the diversity and complexity of questions in finance and credit mechanism improvement during the experiments which are, or will be conducted in other sectors. As is known, the search for new management forms and methods is being conducted in the railroads, construction, communications, agriculture and personal services. Experiments are under way to more completely combine territorial and sectoral management. Basically new experiments have appeared in individual large production associations.

However, the requirements upon the finance and credit mechanism are the same for all the diverse approaches meeting sectors' specific features. The mechanism should actively influence production efficiency, help put reserves into use, and promote further developments in cost accounting relations at all management levels -- from ministry to enterprise, shop and brigade.

The most important direction in deepening cost accounting at associations and enterprises should be to assure loss-free, profitable work covering outlays for production development and improvements primarily through the unit's own resources. In this regard it is necessary to further improve the planning of



profits as the most important indicator for cost accounting based activity at production associations and enterprises. The planning of production association and enterprise profits and payments to the state budget should be directed towards giving enterprises a greater interest in monetary accumulation, the effective use of material and financial resources and in increasing their responsibility for the fulfillment of obligations to the state.

The economic experiment has expanded the rights and increased the responsibilities of production associations and enterprises in technical improvements and the development and introduction of new technology. Thus, they are given complete independence in the use of the production development fund for technical improvements. They are authorized to use for these purposes some of the depreciation allowances intended for major repairs. They also have expanded possibilities for using credit to implement highly effective measures for the technical reequipment of fixed capital, to award workers bonuses for the development and introduction of new technology and to set wholesale prices for semifabricates, components, parts and experimental groups of items. However, practical experience is evidence that these measures are not yet yielding the appropriate returns.

During the experiments it became increasingly obvious that it was necessary to intensify economic influence upon improvements in circulating capital use. In recent years reserves of commercial-material resources have been increasing at pace setting rates compared to production volume, while a number of ministries are not meeting targets for accelerating the turnover of circulating capital. Many associations and enterprises permit losses of their own circulating resources and do not take the measures necessary to restore them through internal sources. Unfortunately, these negative tendencies have not been overcome during the experiment.

We assume that all this will help the more active use of financial and credit methods to improve production association and enterprise efficiency.

Cost accounting methods should be more actively introduced in the practical work of sector management organs for industry -- ministries and industrial associations -- taking into account their functional specifics. It is apparently advisable to support the central apparatus for all industrial ministries through deductions from production costs of subordinate enterprises. At present this procedure is used only for VPO [All-union production associations], while expenses for supporting the apparatus of most ministries are covered through the budget.

Bringing cost accounting down to production brigades is one of the most important aspects of further development and strengthening of cost accounting. In recent years extensive attention has been given to these questions. Brigades on cost accounting must be given more rights in the use of the wages fund independently of how many workers have met their targets, in introducing incentives for an economical attitude towards the equipment assigned to them, for the rational use of the brigade's material resources, etc.

Economic stimulation funds have a large role in the cost accounting system. In 1985 it was planned to have a total of 38 billion rubles in economic stimulation funds for the entire national economy. This is a 3.3 billion ruble increase over 1984. It includes:

Fund (billions of rubles)	1984	1985	Growth (Percent)
Material incentives	14.3	15.4	108.2
Social-cultural measures and residential construction	5.4	6.0	110.7
Production development	9.9	10.5	107.8

The formation of sizable economic stimulation funds creates conditions for more completely meeting workers' social needs, has a positive influence upon retaining key personnel, growth in production efficiency, reducing production costs and increasing profits. There are considerable reserves for enhancing the economic stimulation fund's influence upon increases in production efficiency. It is necessary to see to their closer linkage to the final results of association and enterprise production and economic activities.

There is a need to strengthen the role of the social-cultural measures and residential construction fund in solving questions in labor collectives' social development. This source is insufficiently used for housing construction. Less than one-fourth of it is used for this purpose. Enterprises and associations still do not have much responsibility for or interest in financing outlays for collectives' social development through their own resources. It is apparently advisable to switch to using this fund to finance all outlays for the construction and operation of housing and other social-cultural and service facilities.

The party's course to strengthen kolkhoz and sovkhos economies is being systematically implemented. After the March (1965) CPSU Central Committee Plenum there have been repeated increases in procurement prices and improvements in material-technical support to agriculture. Between 1966 and 1980 capital investments in agriculture totaled about 400 billion rubles. During this same time farms obtained an additional 240 billion rubles because of increases in procurement prices and markups. The scales of assistance are huge. However, the profitability of agricultural production does not cover outlays for it. At the majority of farms many products, especially meat and milk, are produced at a loss. The potentials of cost accounting are not completely utilized, and indebtedness on USSR Gosbank loans is increasing.

The decisions of the May (1982) Plenum, approving the Food Program and worked out in accordance with 26th CPSU Congress, gave a new impulse to strengthening kolkhoz and sovkhos economies.

Agricultural development questions are now solved together with questions in the supply and servicing of agricultural production and the processing and storage of its products. In planning, these sectors are viewed as a single complex.

In order to strengthen the economies of agricultural enterprises with low profit rate kolkhozes and sovkhoses, their bank debts were written off using national budget funds, purchase prices were increased considerably, and budget financing was established for kolkhozes with low profit rates.

Increased purchase prices for agricultural products and stable retail prices for foodstuffs have increased budget financed subsidies to make up the gap in prices. In 1984 54.7 billion rubles in the budget were used for this.

Production growth and increases in kolkhoz and sovkhos profit rates have helped in restructuring the management of agricultural production. Fundamentally new management organs -- oblast and rayon agro-industrial associations -- have been established in the countryside. In connection with this 3,200 trusts and associations were liquidated and the management staff reduced by 93,700 people.

Together with definite successes in in agricultural production organization and management, there are a number of shortcomings. These involve the finance and credit mechanism, which still has only a weak influence upon improvements in kolkhoz and sovkhos operations and in the elimination of unproductive losses and outlays. A number of farms completed economic activities for 1983-1984 with losses and their USSR Gosbank debt is growing.

Imperfections in the finance and credit mechanism are expressed particularly by many kolkhozes and sovkhoses obtaining additional income not through expansions in production, but through increases in payments to labor, the growth rates of which exceed growth rates in labor productivity. On some farms all additional income is used for consumption. Intrafarm accounting is still not used. For example, it has only been introduced on one third of the kolkhozes and sovkhoses in the RSFSR.

The state spends large amounts on agriculture not to cover inefficiency, but to create the conditions necessary for increasing production. The finance and credit system faces the task of further improving cost accounting on kolkhozes and sovkhoses, strengthening financial influence upon improvements in the profitability of agricultural production and reducing unproductive losses and outlays. The appropriate measures should find their place in our plans for economic and control work.

The profound qualitative changes in the economy's development and the growth in the scale and complexity of the problems being solved substantially increase the importance of systematic improvements in management, especially in all levels of its organizational structure.



A complex of measures is now being implemented to improve management apparatus activities, and reduce its expenses. In 1984 the number of workers in the national economic management apparatus was reduced by 268,000. The savings amounted to 1 billion rubles. According to data from ministries and departments, 532 organizations and enterprises previously having their own balance sheets and 3,800 sections, shops and other units were eliminated. These measure substantially limited unjustified increases in the number of management workers. There have been improvements in the ratio of management and staff growth to that of the number of workers.

A well known positive role has also been played by limitations upon management apparatus size and expenses which were introduced in 1982 by USSR ministries and departments and union republic councils of ministers for their subordinate enterprises, institutions and organizations.

Economic methods are used to restrict growth in the management apparatus. A procedure has been established in which maintenance expenditures for the apparatus of all-union (republic) industrial associations depend upon the results of enterprise financial-economic activities. The central apparatus of USSR and union republic ministries and departments, the middle levels of management and industrial and construction organizations have been authorized to give raises for work with smaller staffs.

Norms for the number of workers in the management apparatus for USSR and union republic ministries and departments and incentive measures for workers in production associations, enterprises, institutions and organizations with smaller staffs are all being developed. The search should be continued for new economic tools to improve and simplify management apparatuses and to reduce their costs. At the same time it is essential to intensify control.

It is very important to improve and simplify accounting and report systems in the national economy and, on this basis, to reduce paper flow. It should be noted that definite work has been done in this direction in recent years. In particular, proposals have been prepared to reduce the volume of bookkeeping in the national economy by an average of 40 percent. There are provisions to abolish the compilation and presentation of local reports and balances, to eliminate some independent reports and certain types of bookkeeping accounts duplicating similar indicators in statistical reports. Also, it is intended to change the time for presenting some types of reports and to reduce duplication in reference [spravochnyye] indicators given in various forms of reports.

Simultaneously with this there has been a 30 percent reduction in bookkeeping reports on implementation of budgets and estimates of expenses at institutions. Thus, much work has been done, but there is still much to do.

The establishment of a single bookkeeping plan for organizations on cost accounting in all sectors of the national economy and the unification of the bookkeeping plan and account documentation at budget financed organisations should be an important direction for further improvements and simplification in accounts and reports. It is necessary to simplify and reduce the number of forms and indicators used in working out the state plan and budget. This will

also reduce the volume of reports on their implementation. All this work should go on continuously, becoming one of the major factors in further improvements in national economic management.

In recent years there has been a considerable strengthening of the roles of local soviets and their budgets in increasing production efficiency and improving the work quality of national economic sectors.

Expanded financial ties between local soviets and associations, enterprises and organizations in their territories has made it possible for local budgets to obtain additional income. Starting on 1 January 1985, a number of oblasts in the RSFSR and the Ukrainian SSR, the Georgian and Estonian SSRs have been conducting an economic experiment. This involves industrial associations and enterprises transferring to local budgets some of the profits obtained primarily through the production of mass consumption goods. The experiment's goal is to enhance the local soviets' role in improving production efficiency, in the comprehensive economic development, expanding the production of mass consumption goods and services and in strengthening the dependence of local budget incomes upon the work results of associations, enterprises and organizations.

The task is to further systematically coordinate, at the republic and local level, plans for economic and social development and the location of productive forces, and to assure leadership and control over the work of directly subordinated sectors and production operations meeting the public's demands for goods and services. Territorial planning in sectoral organs should be improved for these purposes.

It is necessary to note the extremely important role given to finance and credit tools in economically stimulating mass consumption goods production, quality improvements and assortment expansion. The production of goods for the people is not only an economic, but also a social question. The income side of the budget, the stability of monetary circulation and the satisfaction of effective demand all depend upon its successful solution.

In recent years much has been done to improve the planning and stimulate the production and sales of mass consumption goods. However, as reviews and surveys show, the managers at a number of associations and enterprises continue to formulate production plans without including sales potentials and do not take the measures necessary to reduce the production of goods not in demand by consumers. Trading organizations in union republics often are slow to request curtailing the production of goods not in demand. This leads to additional costs because their sales prices must be reduced. In addition to administrative methods, financial methods, economic stimulation and sanctions should be used to correct this situation.

In examining urgent problems in intensifying the role of finance and credit in the Soviet economy, consideration must be given to international aspects, above all, CEMA country integration. It is becoming an increasingly important factor in the development of our countries' national economies.



The common interests of socialist collaboration require the systematic implementation of the decisions made by the June 1984 Economic Summit Conference of CEMA Countries to deepen socialist integration. Existing foreign exchange, credit and financial instruments should actively assist in measures called for by the conference's decisions.

In general, the existing account settlement and credit mechanism, based on a collective currency (the transferable ruble), assists in measures to further develop and deepen economic and scientific-technical collaboration among CEMA countries. This mechanism helps assure continuity in mutual accounts for all types of economic ties, the planned expansion of foreign trade, the convergence of economic development levels among CEMA countries, to a considerable degree protects their national economies from the negative influences of capitalist economies and makes it possible to conduct foreign exchange and credit policies independently of imperialism. Its further improvement should assist in large joint projects, collective scientific-technical developments, the organization of joint enterprises, associations and direct ties between ministries, associations and enterprises. This promotes the tendency to develop the economic mechanisms of CEMA countries at contemporary levels and to enhance the initiative and responsibility of the main economic elements of production management. Participants in this integration directed the Economic Summit Conference to strengthen such ties. It is also essential to clearly comprehend and include the new phenomena in socialist finance which are arising and developing under the influence of socialist integration in the CEMA countries.

In developed socialist society all financial and credit relationships in the national economy are being improved. Finance and credit are having an ever more active influence upon the proportions and pace of economic development and upon the intensification of public production. They are powerful instruments for national economic management. Improvements in the efficiency with which they are used is an important reserve for solving the social and economic tasks facing our country.

The Soviet people approved the results of the April (1985) CPSU Central Committee Plenum. Workers are showing solid decisiveness, initiative and selfless work to honorably celebrate the 27th CPSU Congress.

Collectives of financial organs and each specialist in the financial system should mobilize their creative efforts and capabilities to strengthen the efficiency of control and economic work. It should be structured to be of universal assistance in intensifying public production, obtaining better national economic results and implementing the April Plenum's decisions.

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INVESTMENT, PRICES, BUDGET AND FINANCE

STROYBANK CHAIRMAN SEEKS INCREASED INVESTMENT EFFECTIVENESS

Moscow PLANOVYE KHOZYAYSTVO in Russian No 7, Jul 85 pp 10-18

[Article by M. Zotov, board chairman, Stroybank USSR: "Increasing the Effectiveness of Capital Investment"]

[Text] Our country possesses the largest investment complex in the world. At the modern stage it has been called upon to make a significant contribution to the universal technical re-equipment of existing production facilities, and to form powerful sectors in which the latest achievements of the scientific-technical revolution (microprocessors, flexible automated systems, biotechnology, and so on) are concentrated. As a result the prerequisites have been established for a resource-conservation trend in developing the national economy, and for growth of labor productivity and the workers' welfare.

Successful realization of such tasks requires improving the activities of the country's investment complex. We have in mind increasing the level of investment in machine building, thoroughly reviving the output of construction materials, and improving the capital investment structure and the quality of construction. Intensification of the investment complex must be accelerated, and on this basis the effectiveness of its functions must be significantly increased.

In the technological structure of capital investment the proportion of construction and installation work is disproportionately large and the share (in terms of cost) for installed equipment is not large enough. The volume of expenditures for materials in the total expenditures of the construction organizations is not being reduced and is at times increasing; as a result, construction material consumption is increasing. It was noted at the April (1985) CPSU CC Plenum that, "The administrators of many ministries and enterprises are striving to 'pry out' more capital investments, machine tools and machinery, raw materials and fuel from the state. At the same time they quite often have an irresponsible attitude toward their rational use... Many projects are under construction for an unacceptably long time. As a result, quite a large amount of valuable materials are taken out of circulation."

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<sup>1</sup> "Materials from the CPSU Central Committee Plenum, 23 April 1985," Moscow, Politizdat, 1985, p 9.

A great deal more attention should be paid to these questions, for a significant amount of resources lies therein. Additional living quarters or industrial facilities of lightweight construction could be built from the materials freed up by virtue of using cheap raw materials, industrial wastes and byproducts.

Reorientation on a vast scale, making use of new construction for the rebuilding and technical re-equipping of existing enterprises, chiefly in industry and agriculture, represents a major resource for improving matters in capital construction and in improving the technological and reproductive structure of capital investments.

As Comrade M.S. Gorbachev stressed in his speech before the CPSU CC conference on questions of accelerating scientific-technical progress: "It is important to reject without vacillating the stereotypical form of management which took shape in the past, in which new construction was considered the basic method for expanding production, when at the same time many existing enterprises had not been re-equipped for many years."<sup>2</sup> The advantage of such a direction lies primarily in the fact that it is not necessary to spend enormous resources (as in new construction) for auxiliary production projects, or those for cultural-domestic purposes. To a significant degree, an enterprise can use its own personnel, load-handling equipment, power plant and so on for reconstruction and technical re-equipment. In order to cut down on expenses for construction work, the industrial facility should be organized in such a way that the old equipment can be removed and the new installed without destroying the load-bearing structure of the buildings. Technical re-equipping and reconstruction of operating enterprises is, other things being equal, more effective than new construction both in terms of expenses and the term of the work as a whole.

First priority for technical re-equipment must go to the key sectors on which the progressively intensive development of the economy depends. The obsolete equipment must be replaced with modern types of the means of labor, based on principally new engineering solutions. It is time to put an end to the practice of carrying out reconstruction based on the technology of the past, for this is not in accordance with the laws governing intensive, expanded reproduction.

According to estimates by economists, the proportion of capital investments for reconstruction and technical re-equipment can be increased at least twofold, as opposed to the present.

These projects should be carried out in no more than 1.5 to 2 years. Such experience exists. For example, in Chelyabinsk Oblast, reconstruction and technical re-equipping of 13 associations in the machine building and

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<sup>2</sup> M.S. Gorbachev, "Korennyy vopros ekonomicheskoy politiki partii. Doklad na soveshchaniy v TsK KPSS po voprosam uskoreniya nauchno-tekhnicheskogo progressa 11 iyunya 1985 g" [The Basic Problem of the Party's Economic Policy. Report at the CPSU CC Conference on Questions of Accelerating Scientific-Technical Progress, 11 June 1985, Moscow, Politizdat, 1985, p10.

metallurgical branches of industry. Modern types of means of labor (machine tools with numerical programmed control, processing centers, flexible automated systems, sections equipped with industrial robots, and the like) have been widely introduced at the enterprises. Thereby, significant savings have been achieved, which are truly genuine and not just symbolic economies, and the problem of significant growth in labor productivity is being solved. As a result it has been proposed to release a portion of the work force--the need for living labor having been reduced by 15 per cent, while the production program has been increased.

The orientation of the investment complex toward reconstruction and technical re-equipping existing production is the strategic policy for the period up to the year 2000, which is promoted by the following tendencies. Of the entire volume of fixed production assets put into operation in 1983, more than 80 per cent represented its net increase of which more than 85 per cent was in industry and the remainder, investment in place of allocated funds. The latter comprised 1.41 per cent of the value of the fixed production assets in the national economy, of which nearly 1.3 per cent was in industry. Meanwhile, for the intended renovation, the deductions for depreciation would have been enough to replace a 3.5-fold greater volume of fixed production assets throughout the national economy. For industry the corresponding ratios were even higher.

To the extent that amortization under conditions of intensive development means mandatory reconstruction and technical re-equipment or modernization in the course of capital repairs, it is clear that it is necessary to make fundamental changes in the direction of the efforts of the entire investment complex.

It is not possible to carry out highly precise machining of parts on obsolete equipment, or to produce products which satisfy the increased requirements. But using the new equipment--the modern type of means of labor--requires new technology, organizing the labor of specially-trained personnel, and a system of service support. Consequently, technical re-equipment and reconstruction should essentially replace all components of the production process both in the basic and in the auxiliary shops. And that is why the task is set not only to renovate the fixed production assets, but also to transform the material-technical base of the economy.

However, far from all installed equipment represents new technology which corresponds to world standards; and not all structures which have been built meet the same requirements. There remains a great deal to be done in this area. Moreover, it must be taken into consideration that even when technical re-equipment projects, reconstruction and modernization are based on the most advanced solutions, but the investment cycle remains a lengthy one under the conditions of accelerated scientific-technical progress the equipment introduced turns out to be obsolete from the moment it begins to operate. If the existing system is not changed, wherein those taking part in the investment complex consider their functions discharged when the fixed assets are put into operation, the latter will still be in the process of



assimilation for many years and will not be operating at full capacity because of the lack of new technology developed beforehand; or because of disparities in supplying new materials; or owing to lack of trained cadres.

Reorganization of the investment complex requires raising the level of the work of designing and planning organizations, the experimental and testing base, the construction and installation trusts, and the machine building plants which are manufacturing the equipment. Plans for new types of means and methods of labor must exclude hard, monotonous and unskilled labor at all production sectors. The separate means of labor must not be established one by one, but simultaneously, in complete sets, at a uniform technical level, supporting the manufacture of finished products. The type of production itself must be oriented toward using the starting materials to the maximum, be they natural or secondary resources--and industrial wastes must be reprocessed, without polluting the natural environment. This is a requirement of a social nature. The economic requirement lies in the fact that the new means of labor must ensure higher effectiveness; and not only the so-called symbolic estimated effectiveness, but the real thing--which would be expressed in growth of production, in raising its quality and in the final analysis increasing the enterprises' income.

Two per cent of the total volume of capital investments goes to drawing up the technical design documentation (not counting that prepared by the enterprises). Skilled specialists and scientific workers numbering in the thousands are employed at designing. They have produced first-class designs for the greatest national economic projects. The results of their activities are known not only to us, but also abroad. Nevertheless, there still remains a lot to be done to improve the organization of the work of the designers. Presently it is planned and analyzed in the majority of instances from the point of view of a predominantly quantitative approach; that is, depending on the volume and the estimated cost of the projects. And incentive pay is to a significant degree established depending upon the estimated size of the reduction in costs for the future project as compared with the prototypes and conditions selected by the designers. Being interested in receiving the largest possible income, the design organizations quite often propose unrealistic solutions, which are divorced from existing capabilities.

It would evidently be fitting to establish that the economic evaluation of new equipment should as a rule be made by its user. Moreover, the sole source of incentive pay for all those taking part in the investment complex should be only the actual savings from the successful economic activity of the project being built or rebuilt, defined by the type of its influence on the socio-economic effectiveness of social production. For the present, the practice of the designing organizations in forming and using incentive funds, it would appear, does not completely correspond to the interests of the clients, nor to that of the national economy as a whole. To a large extent it brings about increased cost estimates for a number of projects. A significant portion of the annual growth in capital investments goes to cover unplanned increases in construction costs.



According to the decree of the USSR Council of Ministers of 28 January 1985, "On Further Improving Design-Estimate Matters and Increasing the Role of Expertise and Author's Supervision in Construction," in 1986 it is planned to approve costs for design work, wherein the costs do not depend on the expenses for construction and installation work, and which take into consideration expenses for working out project variants, designing models, and the need for more profound analysis of the technological, volume-planning, design and architectural decisions. It contains a requirement for forbidding the use of technological processes and equipment for projects which do not correspond to the latest achievements of science and technology. Design development, the decree stresses, should be accomplished on a competitive basis. It also envisages that allocations for the material incentive fund for design and research organizations should be made by the client, depending on the quality and economic effectiveness of the design decisions implemented.

It goes without saying that these conditions must be made specific, and turned into operating instructions, which consider to the maximum extent the principles of the actual socio-economic effectiveness of autonomous finance. Efforts must be made the success of which will largely depend on extensive use of electronic data processing, and intensive use of computerization of design-estimate work.

The transformation of the material-technical base of production is brought about to a significant extent by the activities of machine building. The production growth rate in machine building and metal working in our country is high. This branch of industry has 25.8 per cent of all production and 24.3 per cent of the fixed capital. The capital-labor ratio is increasing; however, few of the fixed assets which have been removed have been replaced with new assets.

The problem consists not so much of further accelerating the renovation of the reproductive apparatus, as it does overcoming the extensive nature of renovation, eliminating the gap between a disproportionally large input of fixed capital and the insufficient removal of the obsolete. In and of itself expanding the scale of renovation, of course, does not solve the problems of intensification, if the equipment and the capacities which are sent to replace that which has been removed are not essentially different from the former, and are not the embodiment of the most progressive solutions. Consequently, the development of machine building, as was noted at the April (1985) CPSU Central Committee Plenum, must be given priority and there is to be a one-and-a-half to twofold increase in the sector's growth rate yet in the 12th Five Year Plan.

While accelerating the process of renovating the equipment one must not fail to consider the fact that a significant portion of the latter will be replaced by a smaller amount of more powerful and at the same time compact sets of equipment, which requires less expenditure of living labor to service it (at a ratio of about 5:1 if one has in mind the equipment of the type at the processing centers). In the current five-year plan the output

of modern equipment is increasing at a very high rate. Specifically, production of computer equipment will increase by 37 per cent, means of mechanization and automation of engineering-technical and managerial work by 22 per cent, metal-working machine tools with numerical programmed control by 28 per cent, automatic and semiautomatic lines for metal working by 17 per cent, automatic manipulators by a factor of 6.9, and so on.

In analyzing the capabilities of machine building enterprises to fulfill the tasks facing the investment complex, their large internal reserves must be taken into consideration. Here one quite often still finds equipment standing idle; the shift coefficient for its operation is rather low; and the capital investments which have been allocated are far from fully used. At 11 machine building ministries alone, over the three years of the current five-year plan, they failed to make use of 10 per cent of the resources allocated to them. Nevertheless, the course taken up at present for reducing the influx of imported equipment requires, it would seem, increasing the growth rate of capital investments in the leading branches of machine building.

The qualitative structure of the production of machine building requires improvement in that it should not be producing individual machines made up of odd parts, but complexes of the means of labor together with technological fittings, with programs for the manufacturing processes, and auxiliary equipment, including industrial manipulators. It is important that the appropriate subelements of the machine building plants--those who deliver the equipment--take part in adjusting it at the operating location; that they train the personnel; and after the assimilation is complete, that they provide service support, spare parts, assemblies, and units for the equipment which they have turned over for operation.

For the purposes of fundamental technical reconstruction, it is necessary to:

--Tighten up the requirements for the new equipment, while achieving significant improvements in its parameters which surpass the most advanced models in the world. Along with growth in labor productivity the reconstruction should ensure reduction in the consumption of raw materials, supplies and energy for the newly-introduced technologies. Attempts to raise prices groundlessly for modifications to machinery, which do not significantly increase labor productivity as compared to that which it replaces, must be decisively halted.

--Reject the practice of distributing new equipment among a large number of similar enterprises without considering the degree to which they are using their existing pool of equipment, and switch to large-scale re-equipping of existing production with new equipment; and

--Take up a course for increasing the output of machinery and equipment for waste-free and nearly waste-free technology.

Investment machine building has been called upon to provide the enterprises in the building process with technology, machinery and equipment which completely satisfies the contemporary requirements of the scientific-technical revolution; for the projects being built must be functioning effectively at the turn of the 20th century and into the 21st. Meanwhile, scientific-technical progress is brought about predominantly by means of perfecting the existing technologies, and only partly by modernization of machinery and equipment.

It is also necessary to consider expanding the functions of the machine building plants in adjusting the mechanism of the large-scale economic experiment so that the enterprises might have broader opportunities for economic maneuvering for the purpose of satisfying to the maximum the increasing national economic needs. The proposal to lay special stress initially on internal reorganization of the leading plants in each of the machine-building subsectors, strengthening their experimental, advisory, installation and adjustment subunits, seems to us to make the most sense-- and then reconstruct and reorganize the other enterprises on the basis of this experience.

During the period 1971-1983 the production of building materials developed at a lower rate than for industry as a whole. There must be improvements in the structure of the construction business in order to significantly reduce the consumption of materials in construction and to improve the quality of the projects being built. Apparently it is necessary to limit the sphere of use of precast ferroconcrete, heavy materials and structures; and to radically increase the use of aluminum, progressive construction materials, ferroconcrete cast in situ, bricks, and plastic.

The switch to a high-effectiveness policy in the area of the development and functioning of the investment complex under conditions of putting the economy on the intensive track has required a significant reduction in the growth rate of capital investment, with an outstripping growth rate for the introduction of fixed assets. This policy is providing positive results: the rate of introduction of fixed assets for the four years of the current five-year plan is greater than the growth rate for capital investments; thereby, a resource-conservation trend is being observed in the development of the latter. The indicators for fulfilling the plans for assimilating capital investments and putting capacities to use have improved.

In the future it will continue to be necessary to allocate capital investments primarily to measures connected with introducing to the national economy the latest scientific-technical achievements for the technical re-equipment and reconstruction of existing enterprises, for the overall development of the raw-material and reprocessing branches, and for eliminating inter-branch and intra-branch disproportions. Owing to a number of measures implemented by party, Soviet, planning, economic and financial-credit organs, to include the system of Stroybank USSR, a large concentration of capital investments has been achieved in construction projects now beginning to operate (80 per cent). The construction capacities and material resources have been concentrated on a smaller number of projects than previously. In recent years the number of construction projects has decreased by 14-15 per cent.

Nevertheless it is necessary to struggle even harder with the frittering away of capital investments, and to achieve a reduction in the number of newly-started construction projects. It was pointed out at a meeting of the CPSU CC on questions of accelerating scientific-technical progress, that in the case of projects under construction, one must "examine them carefully: some projects should be speeded up, and others should be brought to a halt or temporarily closed down," in order to concentrate our efforts on the most important construction projects; for it will take five or six years to complete all the construction projects which have been started. At the same time, it is important to increase the readiness of construction projects undertaken.

Narrowing the front line of projects under construction is also determined by the necessity to bring the number of workplaces and labor resources into line with them (to include those newly introduced). Instead of new construction one must take the path of increasing the intensive factors of economic growth; for example, by virtue of increasing the shift coefficient for equipment. This will help overcome the trend for reduced yields on capital in the country's national economy.

At the same time it is necessary to curtail the allocation of capital investments for construction of especially large projects. It is important to erect a reliable economic and organizational-administrative barrier before the managers who are striving to take the extensive path of development, who are demanding increased capital investments.

Carrying out such a policy in conjunction with other measures will permit reducing construction time. And after all a reduction in the length of time of only one year will make it possible to receive an extraordinary effect in the form of a 10-11 billion ruble increase in the national income.

One of the pressing problems is introducing to the planning process a system for evaluating plans for capital construction, not only from the aspect of the volume of resources, the capacities introduced, the amortization period, and the form of reproduction of funds, but also from the aspect of embodiment of highly-effective scientific-technical achievements.

A large amount of organizational work has to be undertaken in order to solve both in principle and in essence such a burning problem as the rapid assimilation of production capacities introduced. It is well-known that because of extraordinarily long periods for assimilation the national economy loses large volumes of production every year. The enterprises themselves, as practical experience has shown, are at times incapable of coping with the entire complex of operations which are necessary for successfully assimilating the capacities and achieving their full yield. It is expedient to study the question of whether all those supervising the activities of all the links in the investment complex are carefully coordinating their work; and whether a single organ is supporting the process of assimilation of the capacities introduced (perhaps at the territorial or regional level), one which would bear overall responsibility for the end product.



At the present time large-scale measures are being taken in the sphere of management of the construction industry. Small-capacity construction organizations which are not ensuring that requirements are observed with respect to the period and the quality of their work will be amalgamated and technically strengthened. There will be more proportional increases in the sphere of work of organizations located in different regions of the country. And mobile construction subunits are being created to provide services to the rapidly developing economic regions.

Further developing autonomous financing, increasing profitability, and ensuring loss-free, highly-effective economic activity are important tasks. Certain construction organizations are still permitting losses, including losses from their own mismanagement. The apparatus of Stroybank USSR is applying strong economic influence measures on them, and is at the same time assisting those which are actively eliminating their shortcomings. Strict accountability for fulfilling the state plans is the rule in the work of the organs of Stroybank USSR. It is especially important to maintain this principled line in the light of the criticism directed toward capital construction at the April (1985) CPSU CC Plenum.

The initiative of the progressive construction organizations in increasing their responsibility for the quality of their work and for the overall condition of the project is of enormous significance. Presently new methods are being sought to ensure that the activities of all participants in the investment process are carefully coordinated; that they assume mutual responsibility for rendering assistance to one another; and that uniform schedules are drawn up for joint assignments. The practice is becoming more and more widespread of "handing over the keys" to a totally-completed project. Certain measures have been planned which will facilitate extensive introduction of this progressive method of operation.

In the decree of the USSR Council of Ministers and AUCCTU of 24 January 1985, "On Perfecting the Organization, Wage System and Labor Incentive in Construction," measures are envisaged for further improving the organization of the construction industry, and for changes to the structure of the building trusts. Genuine preconditions are being established for applying the brigade contract method everywhere. Material stimulus is being strengthened for handing over projects to the client on time and in proper condition. Special incentive is being given to timely and qualitative completion of work on reconstruction and technical re-equipment of existing production. At the same time increased demands are being made on the supervisors of the contracting organizations, and their responsibility for ensuring carefully-coordinated and effective construction is being increased.

Deserving of attention is the economic experiment conducted in the Belorussian SSR and the Lithuanian SSR since 1983 on reducing labor and material expenditures and the estimated cost of construction. The goal of the experiment consists in creating conditions in which the client, the contracting, and the planning organizations have an equal interest in the matter, by means of introducing the achievements of scientific-technical



progress and advanced experience, for a construction project completed in the course of a certain planning period at the lowest cost, along with a reduction in labor-intensiveness, material consumption, and costs of the projects being built. This will provide an incentive to all participants to prevent exceeding the established ceilings for capital investments and the time periods for putting up the enterprises, buildings and structures.

Successful realization of investment policy requires implementing a number of organizational measures, which should include the following:

--Bringing the number of projects and their overall estimated cost into line with the capabilities of annual financing by branch, within the norms for length of construction time (Only in this manner can each construction project be given a genuine schedule for completion, and normal--corresponding to standards--financing and material-technical support);

--Strengthening the material-technical base of construction;

--Reducing the standard for uncompleted construction (Today it amounts to 72 per cent of the annual volume of capital investments), since even with its reduction, the proportion of new construction remains high; and,

--Certifying all covering documentation for planning, planning-designing, and engineering work, in accordance with contemporary technical-economic requirements.

In the last decade significant changes have taken place in the structure of the sources of financing and capital investments. That which comes from one's own resources comprises 50.9 per cent; budgeted resources amounts to 41.4 per cent; credit 5.1 per cent; and 2.6 per cent comes from other sources. Especially significant is the growth in one's own sources as an indicator of the development of economic relationships in the investment complex and in certain branches. In 1965 the proportion of such resources amounted to 18-20 per cent. It is important to emphasize that each source has its own sphere of influence and its own ceilings within whose limits it can be effectively used. Thus, budgeted resources represent a lever in the state's hands, used to regulate the most important proportions in the development of the economy, which determines the capability to realize the strategic national economic tasks, including social tasks.

The theory and practice of socialist management confirms the legitimacy of increasing the role of long-term credit. It can be successfully used as a form of economic orientation of the production collectives toward increasing the socio-economic effectiveness of social production by virtue of enlisting available reserves for action. For example, in the 10th Five Year Plan and during the first three years of the present one about 80 per cent of the enterprises erected with the aid of credit, were turned over for operation in the planned, normative periods--which is far more in comparison with those enterprises put into operation by means of the other sources of financing. Assimilating capacities with the aid of credits is also more successful owing to the significant influence of the banks on those taking

part in the investment process. Of interest is the experience of Gossnab USSR in the construction, on a long-term credit basis, of seven enterprises for manufacturing cartons and paper from reprocessed waste paper. In 1982 capacities were introduced for producing 400,000 tons of cartons at the Leningrad Carton Factory and at the Kiev Carton-Paper Combine. That same year, 65,000 tons of cartons were produced at these enterprises, and in 1983, 199,000 tons; or, 10,000 and 18,400 tons more, respectively, than envisaged in the assimilation standards.

In accordance with the decree of the CPSU CC and USSR Council of Ministers of 29 April 1984, "On Improving Planning, Organization, and Management of Capital Construction," Stroybank USSR has practically implemented planned measures on:

- Offering credit at interest rates reduced by one-half to construction organizations which are successfully carrying out their tasks;

- Uninterrupted financing of construction projects for production purposes within the limits of their estimated cost and established terms of completion;

- Financing expenditures for acquisition of major technological and power engineering equipment for projects for production purposes for the entire planned period, up to turnover for installation;

- Paying bills for equipment of domestic manufacture or imported equipment at construction projects, included in the capital construction plans, on condition that the volume of deliveries does not exceed the planned volumes for turning over this equipment for installation, and does not exceed the norms for reserves being carried over;

- Offering contracting construction-installation organizations long-term credit for a period up to three years for carrying out state capital investments which exceed the limits, for organizational-technical measures on economizing on material resources and for mechanization of labor; and,

- Limiting the allocation of credits to contracting organizations which violate state planning discipline (except to cover expenditures for production not completed).

Thus, the bank is actively stimulating highly effective activity by those taking part in the investment cycle, rightfully encouraging those units which work well. At the same time it is taking serious economic sanctions against those construction organizations which are working poorly, which permit mismanagement, which do not fulfill the state plans, and which raise the question of loss of premiums and levying fines on the supervisors which are remiss. Publicity in the work of the banking organs permits disclosing the true reasons for shortcomings in the activities of those taking part in the investment cycle. Possessing operational and timely information, as

well as weighty instruments for economic influence, the institutes of Stroybank USSR regulate production, and influence the various aspects of the activities of autonomous-financing enterprises and organizations in the investment complex.

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## REGIONAL DEVELOPMENT

### INDUSTRY VERSUS REGIONAL DEVELOPMENT COORDINATION DEBATED

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[Materials from roundtable discussion held by the UkSSR Academy of Sciences' Scientific Council on the Complex Problem "Optimal Planning and Management of the National Economy", the editorial board of the journal EKONOMIKA SOVETSKOY UKRAINY, and the Donetsk Oblast Board of the Scientific-Economic Society: "Problems of Combining Sectorial and Territorial Management (a discussion of current problems in improving the economic mechanism)"]

[Text] In late 1984, at the Industrial Economics Institute of the UkSSR Academy of Sciences in Donetsk, a round table discussion was held on the problem of combining sectorial and territorial management. More than 40 people participated in the meeting, including specialists from ministries and departments, workers from party and soviet organs, managers of enterprises, and scientists from Moscow, Kiev, Tallinn, Donetsk, Odessa, Ternopol, Ivano-Frankovsk, Lvov, Kharkov, Poti, and other cities around the country.

Academician N. G. Chumachenko, chairman of the UkSSR Academy of Sciences' Scientific Council on the Complex Problem "Optimal Planning and Management of the National Economy", director of the Industrial Economics Institute of the UkSSR Academy of Sciences, and member of the editorial board of the journal EKONOMIKA SOVETSKOY UKRAINY, opened the meeting.

N. G. Chumachenko: The focus of today's discussion is on problems involving realization of the considerable reserves for increasing the efficiency of national production and for making further improvements in the people's living and working conditions, which lie in more rational utilization of the production system that has already been created and existing material and manpower resources through better territorial organization of the national economy and management based on an optimal combination of two approaches--sectorial and territorial.

The idea is to combine the management activities of two types of organs--sectorial and territorial, since a sectorial organ cannot represent an entire territory in any comprehensive way. But to manage means to exert an influence. Therefore, the effects should be classified first of all in terms of objects, and second, in terms of methods, and these effects are not neutral with respect to one another.



Classification of effects in terms of methods naturally leads us to an examination of methods of management, general functions of management, and stages of the management cycle. The question arises: what methods, functions, and possibly stages, of the management cycle are characteristic of sectorial and territorial organs?

Without an answer to this question it will be difficult to establish mutual understanding and move forward with any success.

Today we plan to discuss the following questions that relate directly to the problem at hand:

1. What type of organ should be the subject of territorial management--the subject that is to cooperate with sectorial management organs?
2. How can the system of comprehensive territorial management be improved, and how can we ensure balance and coordination among all sectorial plans in a given territory? What are the methods, time periods, and procedures for planning, and what about plan discipline?
3. What improvements can be made in organization of the financing and material base for the development of the production and social infrastructure? What are the forms for the participation of enterprises in this work?
4. Why don't local Councils of People's Deputies take full advantage of the rights granted to them?
5. How can a state foundation be given to those strictly territorial systems of management that have been formed and function on a voluntary basis? This refers to systems for managing the acceleration of scientific and technical progress, generalization and dissemination of progressive methods, reducing the labor-intensiveness of production, and utilizing industrial waste.

Professor V. M. Ivanchenko, doctor of economic sciences and deputy director of the Economics Institute of the USSR Academy of Sciences: Deepening the integration of sectorial and territorial production management should be viewed as one of the most important principles for improving the management of the national economy under current conditions. This problem should be resolved in conjunction with improvements in other aspects of the economic mechanism, the system of sectorial management in particular. Organs of sectorial management must be brought closer to the areas where their objects are located, and intermediate links need to be eliminated. It would be a good idea to have internal ministerial organs in the areas where the enterprises are located to manage territorial and sectorial industrial centers.

Another aspect of the problem is further development of the functions and authority of local management organs. We believe that these organs should be assigned functions of developing the infrastructure, increasing the efficient utilization of resources, and coordinating the work of scientific research organizations. It would be a good idea to make the organs of executive committees of local Councils of People's Deputies the only bodies that order

infrastructure development work, and all the nonproduction capital necessary for this purpose should be transferred to their operational administration.

G. N. Glushchenko, chief of the Economic Department of the Zaporozhye Oblast Party Committee: Today the planning and management of industry in the oblast is not carried out by a single center. Its potential is divided among dozens of ministries and departments. Therefore, it would be useful to set up a system under which the basic indicators of plan drafts and the plans themselves, including changes in individual plan indicators that should be taken into account by state statistical organs only with the consent of the Councils, would be sent to local Councils directly by ministries and departments. It would be a good idea to create under the oblispolkom a science and technology department that would be subordinate to the USSR State Committee for Science and Technology, and its responsibilities would include coordinating the efforts to accelerate introduction of achievements of scientific and technical progress in sectors of the national economy in the oblast at all stages (planning, management, control); and it should be granted the corresponding rights.

It would be useful to organize specialized enterprises (one per region) to produce means for small-scale mechanization.

Departmental barriers give rise to considerable difficulties in setting up cooperation among enterprises on issues involving utilization of industrial wastes that are available in the region. It would be a good idea to expand the products lists for planned secondary resources, and projects and plans for processing and delivery of products to other sectors of industry must be coordinated with local planning organs.

N. N. Dovgal, chief of the Comprehensive Territorial Planning and Placement of Productive Forces Department of the UkSSR State Planning Committee: In order to create a well-organized and effective system of sectorial and territorial management, it is necessary to adopt a statute (at the level of the USSR Council of Ministers or USSR State Planning Committee) that provides for the following: strict delineation of rights and responsibilities in relations between planning organs at all levels and associations (enterprises), ministries, and departments; specific time periods within which enterprises located in a given administrative region must submit plans to local planning organs; a clearly defined system for the examination and preparation of comments on plan drafts and a procedure for consideration of these drafts at ministries; a system for making changes in territorial plans; measures of responsibility for heads of enterprises, ministries, and departments for failure to submit to executive committees of local Councils for consideration and approval plan drafts on issues outlined in the 19 March 1981 decree of the CPSU Central Committee, the Presidium of the Supreme Soviet, and the USSR Council of Ministers.

With the aim of eliminating disproportionate development in the production and nonproduction spheres, a system should be set up under which oblast offices of the USSR Bank for Financing Capital Investments would not take on the financing of construction projects for which ministries and departments did not meet the oblispolkoms' demands to include allocations for the construction of housing,

social, cultural, and personal-use projects, and engineering structures identified at the projects' placement and planning stage, in the estimates for the construction sites and construction plans.

M. T. Voinov, second secretary of the Berdyansk City Party Committee: Experience has shown that problems involving more efficient utilization of manpower resources in the city, improving the quality of work, utilizing commercial wastes, and conserving all types of resources are not reflected fully enough in sectorial plans. A territorial approach is needed as well, along with an organic connection between sectorial plans and the interests of economic and social development in the region.

In connection with this, we think that it would be a good idea to introduce in the provision "On Further Expansion of the Role of Councils of People's Deputies in Economic Construction" a point concerning the creation of departments with functions of planning, management, and accompanying work for programs aimed at the region's economic, scientific, and technical development under the executive committees of Councils of People's Deputies; that is, provide a legal foundation for what already exists, what has been dictated by practical experience.

M. I. Dolishniy, director of the Lvov Branch of the Economics Institute under the UkSSR Academy of Sciences and doctor of economic sciences: Improvements in territorial and sectorial planning are tied directly to a study of the spatial differences in the level and nature of development and the distribution of productive forces.

As an example, we can examine improved territorial management of the quality of the labor potential. This includes influences on basic regional factors that have an effect on the formation of the quality of the labor potential: demographic, socio-economic, organizational and technical factors. Each group of factors has a certain significance in a specific oblast.

N. G. Chumachenko: Our institute has been studying problems of regional economics for about 10 years. A great deal has already been done in this area. We dealt in earnest with the problem of rational combination of the two forms of management in late 1982. Since that time we have prepared the methodological foundations for working out general models for the management of the oblast's economic and social development, we have submitted several scientific reports and memoranda on this problem to management organs, and the first draft of a general model for the management of economic and social development in Donetsk Oblast has been prepared. Our institute has an agreement for creative cooperation with the executive committee of the Donetsk Oblast Council of People's Deputies and the Economics Institute of the USSR Academy of Sciences aimed at providing the scientific preparations for and conducting in Donetsk Oblast an economic experiment to step up the integration of the sectorial and territorial approaches to management.

The fundamental provisions of the concept we developed that form the basis of our work are:

1. Resolution of the problem objectively requires an increase in the role of local management organs, but the essence of the issue is not the replacement of one form with another and not simply in the redistribution of functions among them, but in improving the combination of these forms.

2. Decisions regarding this problem should include all sectors of the national economy. But, since certain organizational forms have already been created and already exist in the nonproduction sphere, and a similar process has occurred in the management of agriculture, efforts should be directed first and foremost toward improving the combinations of the two forms for managing industry.

3. There should be a new system for managing the oblast's industrial complex on the basis of combining the two forms of management--sectorial and territorial. It should include, without exception, all the industrial enterprises in the oblast, regardless of the level of the department to which they are subordinate.

4. Economic and social processes already covered by legislation can be objects of territorial management: the production of consumer goods, construction, environmental protection, utilization of manpower resources, utilization of local material resources, workers' services, and new processes that should be covered by law: specialization and cooperative organization of production, centralization of supply and production services, development of the production infrastructure.

5. The main method of management on the part of territorial organs, and the primary function of management in general--planning--is to draw comprehensive five-year plans and annual plans for the oblast's economic and social development that are coordinated with sectorial management organs and contain decisions prepared by territorial organs.

Naturally, when this approach is taken the function of planning should be backed up by the function of monitoring the fulfillment of plan decisions introduced by territorial management organs.

6. The volume of work to prepare plan decisions and monitor their fulfillment which the planning commission is trying to carry out today should be assigned to a more powerful organ of the executive committee, such as the oblast's Main Industrial Administration, and this organ should be headed by one of the first deputy chairmen of the executive committee. The main administration should consist of several sectorial administrations, including functional subdivisions which form the state foundation for special-program management subsystems--scientific and technical progress, socialist competition and dissemination of advanced methods, and rational utilization of material resources.

7. The creation of the proposed industrial management structure should also help establish and strengthen direct economic ties between sectors and the region, especially those involving development of the production and social infrastructure.

M. G. Pabat, chief of the Donetsk Oblast Finance Department: Territorial and sectorial principles must be connected in the oblast's management of the



national economy. The model for the oblast's management of the national economy proposed by the Industrial Economics Institute of the UkSSR Academy of Sciences seems complicated. In this model the management functions are not concentrated entirely in one unit but are scattered among sectors and are coordinated by sectorial and intersectorial territorial associations.

With the aim of arriving at an organizational and economic resolution to the problems of combining the sectorial and territorial approaches to management, we think it would be a good idea to create a single coordination center in the region--an intersectorial territorial industrial association, which would be directly subordinate to the oblispolkom and would include all the sectors of industry in the oblast. This association could be created by making a partial reduction in the number of existing organs involved in the intermediate management of all sectors of industry located within the oblast.

As an analysis of enterprises' reporting materials shows, the practice of planning turnover tax revenues, profit withholding tax that goes into the budget, and methods for their accumulation are imperfect. The existing system for planning turnover tax based primarily on sales of goods, and not on their production, has some negative aspects. There is a need to work out a single provision for payments into the state budget, since the system for withholding tax and payments is based on various statutes and instructions issued in different years.

B. M. Birenberg, deputy department chief at the Industrial Economics Institute of the UkSSR Academy of Sciences and candidate of economic sciences: The methodological approach to outlining measures needed to improve the combination of the sectorial and territorial approaches to management lies in an analysis of those economic and social processes that are the objects of joint management, and the methods by which management is carried out. This refers to processes with the help of which additional reserves, inaccessible when only sectorial management organs are involved, can be utilized. This applies primarily to processes involved in the territorial organization of production: specialization and cooperation, combined arrangements, and centralization of services and supply, regardless of the departmental affiliation of the enterprises.

The second group of objects of management includes processes tied to concentration of the resources of enterprises under various departments with the aim of improving the workers' living and working conditions.

Consequently, the idea is to use well-known, tested elements to create a supplement to the existing sectorial system of management, with the aim of bringing additional reserves into economic circulation. The supplement is based on the creation of the legal, organizational and economic conditions under which these reserves would be uncovered and utilized in accordance with a plan. Today these conditions do not exist. Soviet executive committees should give authority to enterprises at all levels to plan and monitor territorial organization of production. But in order to do this, a staff of specialists needs to be created under the executive committee, which would be able to prepare the corresponding decisions that are to be carried out through the enterprises' and associations' five-year and annual plans.

L. A. Pedak, sector chief at the Economics and Planning Scientific Research Institute under the Estonian SSR State Planning Committee and candidate of economic sciences: Coordination of the plans of enterprises and associations with local soviets is only a superficial operation today because the local organs do not have any personnel that know all the possibilities of the enterprises and can make sound suggestions to be included in the plan. The fact that local organs in cities and rayons usually establish contacts not with enterprises or associations that have the status of a legal entity, but with production units that have limited rights is a significant flaw in the efforts to combine sectorial and territorial management. The financial independence of local organs is of considerable importance. With respect to this issue we are laying our hopes on the experiment set up in the Estonian SSR involving centralized financing of the development of the nonproduction sphere.

P. G. Sharenko, chief of the Management Organization and Introduction of New Planning Methods Department of the UkSSR State Planning Committee: A region has a boss who has been granted all the necessary authority. This boss is represented by the Councils of People's Deputies. They were granted this authority by the Constitution of the USSR, and it was laid out in specific terms in the 19 March 1981 decree of the CPSU Central Committee, the Presidium of the Supreme Soviet, and the USSR Council of Ministers "On Further Expansion of the Role of Councils of People's Deputies in Economic Construction."

There is now widespread discussion of suggestions that we move to the development of a comprehensive plan for the economic and social development of the republic, oblasts, and cities under the republic's jurisdiction. This type of plan would include all the enterprises in a given territory, regardless of their departmental affiliation.

In order for associations and enterprises under different departments located in a given region to operate successfully, there must be constant coordination of their activities. Practical experience shows that separate meetings are not enough. There is a need for constant control in this area.

It would be a good idea to permit oblispolkoms to use free capacities of industrial enterprises located in the oblast to produce additional quantities of goods that are in short supply (without the consent of ministries and departments, only that of the enterprises' managers).

I. M. Mashtaler, assistant manager of the Donetsk Oblast office of the Bank for Financing Capital Investments and candidate of economic sciences: The problem we are discussing here is of great importance in improving capital construction, which has, as in the past, many unfinished projects and resources are often overextended. The Bank for Financing Capital Investments is prepared to reject financing of projects that have not been coordinated with the executive committees. But this position must be backed up by the corresponding normative acts.

We think that the idea worked out by the Industrial Economics Institute of the UkSSR Academy of Sciences is worthy of attention, and it has a rational foundation.

V. F. Veres, general director of the "Prikarpatles" Order of Labor Red Banner Carpathian Timber Production Association imeni the 60th Anniversary of the Soviet Ukraine and Hero of Socialist Labor: The timber combines built in 1959 are the association's basic production units, and on the basis of rational and more complete utilization of production capacities and manpower, material, and local timber resources, they have provided planned and high-quality development in the area of forestry and the timber and woodworking industry. We have carried out concentration of sawmills and furniture plants. The special comprehensive scientific and production program for rational utilization of timber raw material resources for 1981-1985 became our workers' plan for the 11th Five-Year Plan.

N. I. Konishcheva, senior scientific associate at the Industrial Economics Institute of the UkSSR Academy of Sciences and candidate of economic sciences: In spite of the gains that have been made in the utilization of industrial wastes in the Donets Basin, and in the republic as a whole, there are still considerable reserves for expanding the volume of their utilization. Practical experience offers evidence of the need to develop research on comprehensive utilization of wastes and to introduce the results of this research into production at a qualitatively new organizational level. In connection with this, in Donetsk Oblast, at the initiative of the oblast party committee and the Donetsk Oblispolkom, under the methodological guidance of the Donetsk Scientific Center of the UkSSR Academy of Sciences, work has begun on the development of a General Model for the Management of Comprehensive Utilization of Wastes and Secondary Resources in the National Economy of Donetsk Oblast for 1986-1990 and up to 1995; implementation of this program will begin in the 12th Five-Year Plan.

N. V. Ilin, chief of the Economic Department of the Kiev City Party Committee: Today we are talking about working out a system of measures aimed at providing a comprehensive approach to making the organization of management of national production more efficient, while preserving the predominant role played by the sectorial principle of management.

The mechanism for preliminary coordination of basic indicators in plan drafts with local Councils of People's Deputies does not work in the majority of cases. Regional organs are to blame for this as well. But the primary reason is that ministries and departments take no responsibility at all for this work. Additional measures must also be taken to expand the rights of regional organs.

In our opinion, the functions of managing scientific and technical progress in regions should be assigned to local Councils and specifically to the planning commissions, after they have been reinforced as needed. Reserves of up to 5-10 percent must be provided for in enterprises' plans in order to carry out operations involving technical re-tooling of production and stepping up the production of consumer goods, taking into account the goals for the given region.

Ye. M. Yevsyukov, deputy chairman of the Donetsk Oblispolkom and chairman of the Oblast Planning Commission: The current planning practice, according to which planning commissions receive plan drafts directly from enterprises, does

not ensure prompt compilation of plans. The necessary data often arrive late from enterprises, as a result of which the summary of the data is delayed. Some enterprises and organizations do not receive the full complement of plan indicators.

Changes made by higher organizations in the proposals submitted by enterprises and organizations prior to confirmation are not reported to the local Councils, and in the majority of cases they are not even reported to the enterprises. The oblast's economy is experiencing a shortage of manpower resources, both at the oblast level and in cities and rayons. However, balances of manpower resources are now drawn up only for the oblast center and the oblast as whole. All this makes it difficult to resolve problems involving the comprehensive development of the territory.

G. G. Gaponenko, deputy chairman of the Dnepropetrovsk Oblispolkom and chairman of the Oblast Planning Commission: In order to improve the system for coordinating the distribution of productive forces and the performance of control functions by local Councils at a higher qualitative level (when considering issues involving new construction, expansion or reconstruction of enterprises on instructions from the UkSSR Council of Ministers and the UkSSR State Planning Committee, and when the oblispolkom draws up the corresponding proposals), it would be a good idea for the UkSSR State Planning Committee to inform the oblispolkom about the further resolution of these issues in the government, and ministries should inform the oblispolkom about fulfilling conditions for housing and civil construction, environmental protection, and so on, that is, a feedback system needs to be worked out.

With the aim of establishing effective control and the corresponding influence by soviet organs over the course of fulfillment of sectorial plans, the statistical reporting system needs to be improved, and this requires development of reporting balances for labor resources, data on the use of the limit on the number of white and blue collar workers, and a summary of the results of fulfillment of plans for scientific and technical progress, on the basis of a territorial cross-section--by the oblast's cities and rayons. Enterprises should be required to provide information on scientific and technical progress to state statistical organs depending on their location, and they should also submit quarterly reports using form No 10, "Report on Expenditures on Measures for New Technology and their Economic Effectiveness".

V. P. Vykhreshch, deputy chairmar of the Ternopol Oblispolkom, chairman of the Oblast Planning Commission, and candidate of economic sciences: Coordination of the basic indicators of the plan draft in the pre-planning period in sectorial planning services and monitoring their fulfillment has a positive effect on combining sectorial and regional interests. At the same time, practical experience shows that an obstinate departmental attitude does not always permit Councils of People's Deputies to actively manage a territory's development.

At the stage of drawing up a draft, all enterprises and organizations should not simply coordinate individual indicators, but work out projections in planning commissions. The social requirements for each region should be determined, along with the stages of their fulfillment, and the proportional



participation of each collective in these requirements. These requirements are reported to ministries and departments so that they can take them into account.

Half of the above-plan production of consumer goods must be placed at the disposal of local Councils, without any coordination. Goods produced up to additional quotas on the basis of mobilization of internal reserves should be left entirely at the disposal of the Councils.

I. D. Nagayevskiy, general director of the "Zhdanovtyazhmash" [Zhdanov Heavy Machine Building] Production Association and winner of the UkSSR State Prize: Permit me to describe the problem from the standpoint of a large production association. Practically all the aspects of the association's production and economic activities are tied closely to local management organs.

The association has ties to the industrial-transportation departments of the gorkom and raykom, and with departments of the State Planning Committee and Rayon Planning Committee of the Councils' executive committees to deal with questions involving the development of scientific and technical progress. The basic forms of these ties include monitoring the enterprise's fulfillment of quotas for the creation and introduction of new technology and for the technical development of production. This does a great deal to help management organs analyze the course of technical development and to meet quotas for new technology at the association.

In the production of consumer goods the conflict between the requirement for practical introduction of new goods on the basis of requests from trade organizations (up to half a year) and the requirement for providing production with material resources, with the request campaign taking between 8 and 12 months, is a significant problem. Poor use is made of the opportunities to increase the output of consumer goods by developing cooperation between enterprises in the city and the oblast. It is the oblispolkom's job to coordinate the production of consumer goods in the oblast. It would seem that we should obtain a clearly defined program for the production of these goods in volumes that are coordinated with our ministry's new quotas, and in an itemized assortment, which has been coordinated with commercial demands. In practice, however, this coordination is reduced to the setting of additional quotas.

V. P. Gritsenko, second secretary of the Novoazovskiy Raykom and Hero of Socialist Labor: Management of the agro-industrial complex is one of the important problems involved in combining sectorial and territorial management.

With the formation of rayon agro-industrial associations (RAPO), the conditions are created for the resolution of two main problems--making the operation of each enterprise and organization directly dependent on the final result, and ensuring balanced development of the agro-industrial complex.

At the same time, sales volume plans are submitted to Selkhoztekhnika, which means that it must perform supply functions. Distinguishing supply as an independent service, such as "Selkhozsnab" [Agricultural Supply] would make it possible for Selkhoztekhnika to deal more seriously with issues involving the efficient use of equipment. Its work should be evaluated not on the basis of

fulfillment of sales plans, but on the basis of continuous operation of equipment, machinery, and so on.

Up until now no system has been followed for the distribution of material and technical resources among all the farms through a RAPO. As in the past, the corresponding departments send funds for fertilizers, fuel and lubricants, agricultural equipment, herbicides, and so on, directly to the farms, which eliminates the possibility of even insignificant changes, not to mention redistribution. And where, if not in the rayon, are the demands of each farm evident?

A. I. Amosha, department chief at the Industrial Economics Institute of the UkSSR Academy of Sciences and candidate of economic sciences: Stepping up the combination of sectorial and territorial management of working conditions today calls for more efficient utilization of existing opportunities. Special regional programs should be worked out for managing working conditions at the oblast level, and then at the city and rayon level, the possibilities of working conditions sectors already created in the labor departments of oblistpolkoms should be expanded, and they should play a greater role in coordinating operations in the region. Regional management organs must be given greater authority in solving problems that involve improvements in working conditions and labor safety procedures, and the workers' vital activities as a whole. With this aim, a system must be set up for mandatory coordination with executive committees of plans (or sections of plans) for improving working conditions and labor safety procedures at enterprises.

B. I. Alekseyev, department head at Donetsk State University and candidate of technical sciences: One of the directions for improving the management of enterprises' fixed capital in regions is the special program method, which makes it possible to concentrate resources on the resolution of key problems. Special comprehensive programs are now an object of management.

A special comprehensive program for managing the utilization of fixed capital should include the following subprograms: improvements in the structure of fixed capital and an increase in the extent to which production has been provided with technical equipment; an increase in the level of utilization of fixed production capital; an increase in the capital-output ratio; and implementation of social measures.

A. M. Serebryakov, senior scientific associate at the Industrial Economics Institute of the UkSSR Academy of Sciences and candidate of legal sciences: The executive committees of Councils of People's Deputies should be viewed not just as organs of state power, but also as organs of economic management, and as participants in economic and legal relations; this will help eliminate poor interdepartmental coordination and sectorial and territorial conflicts. In order to do this, it is necessary first of all to work out a single normative act that will provide comprehensive regulation of relations among all the participants in the regional economic system. The Statute on the Regional Economic System, which is a legislative document outlining the system's legal status, could serve as such a normative act. In this case, rather than trying to work out new legal norms, one needs to utilize existing laws and focus attention on forms for the practical realization of the authority of Councils

of People's Deputies. Territorial directors' councils could be one of the optimal forms for coordinating the activities of enterprises and organizations.

V. D. Volkov, department head at Donetsk State University and candidate of legal sciences: In our opinion, every city should have a comprehensive, informational socialist document adopted by the city's residents by means of a referendum.

In this case the workers will have exhaustive information on the availability of hospital beds, polyclinics, seating in public dining facilities, the capacity of theaters, movie theaters, and schools, and whether these figures correspond to state norms. The city's residents will see how the local Council and enterprises arrive at optimal solutions to current and long-range problems, and what each of them has done for its city and to improve the people's living and working conditions and leisure time. All this publicity will increase the authority and responsibility of the gorispolkom.

V. L. Kvint, sector chief at the Economics Institute of the USSR Academy of Sciences and candidate of economic sciences: Issues such as setting up a profit withholding tax to be paid by enterprises at all levels into the budgets of local Councils, and centralized financing from the union budget to develop the social infrastructure, have been key problems for a long time. Today it is clear to everyone that in a territorial unit such as an oblast, there should be a special interdepartmental agency that coordinates all the work being done to step up scientific and technical progress.

N. G. Chumachenko: A number of those participating in our meeting have already contributed to the discussion. It is especially gratifying that the heads of party and soviet organs and important economic managers have offered some interesting comments, that is, those for whom the problems being discussed here are daily practical concerns.

Our tasks do not include summarization of the statements or the development of specific recommendations. Still, we should make some general points, and mention those that are especially obvious. All the speakers believe that the problem of stepping up the combination of sectorial and territorial management is an urgent one and should be resolved. The broad rights granted to local organs of power, for various reasons, are not be utilized to their full extent. At the same time, there are spheres where the authority of local Councils should be expanded. Some constructive suggestions were made with respect to structural changes in territorial administrative organs. Some speakers also expressed the fear that various structural changes could lead to more complicated management, to a duplication in the flow of information, and to an increase in the number of workers in the management sector.

It is likely that these fears are justified. But one must keep in mind that we are talking about new additional reserves, and this also means new economic and social processes, and new management functions and methods, that is, a more complicated subject of management corresponds to a truly complex object of management. It seems that we should devote the time left here to a discussion of these issues.

V. K. Mamutov, deputy director of the Industrial Economics Institute of the UkSSR Academy of Sciences and corresponding member of the UkSSR Academy of Sciences: N. G. Chumachenko has suggested a new approach to solving these problems. It needs to be considered carefully and analyzed.

The final goal is clear--to increase production efficiency. There are also intermediate, short-term goals. And these are not completely clear. Financial organs think that if there is a reduction in staff as a result of reorganization, that means there is an effect. That is, everything is mechanically reduced to the criterion of the size of the staff and the wage fund. And they do not even try to determine how this affects work results. What sort of criterion is this? Without it the decision would be made on a subjective basis.

Therefore the suggestion is made to try to draw up an organizational plan that offers an evaluation of the effectiveness of stepping up the combination of sectorial and territorial management taking into account how this affects, for example, the utilization of resources, improvements in coordination, a reduction in the distance of shipments, and so on.

Professor I. N. Pakhomov, department head at the Odessa National Economy Institute and doctor of legal sciences: Indeed, in theory and practice there is not a unified understanding of the criteria for combining sectorial and territorial management. There is a principle, but no criterion. But the party's economic policies are nothing more than practical conclusions based on the recognized economic laws of socialism. This means that public, group, and individual interests should be taken into account. Consequently, the basic requirements of party policies must be expressed in the organization and structure of management, that is, the extent to which these interests are satisfied should serve as a criterion for combining sectorial and territorial management.

Professor A. G. Topchiyev, department head at Odessa State University and doctor of geographical sciences: We have still not discussed the question of the study and in-depth classification of economic ties, those that involve different numbers of parties, the differences in their significance, content, and so on. Ties that are vertical in functional terms are easier to systematize--the existing management structure contributes to this. Ideally we should know the levels of national and territorial division of labor, and at each level the characteristic laws and principles governing the action of the basic forms of public organization of production: specialization, cooperation, and concentration.

V. V. Finagin, department chief at the Industrial Economics Institute of the UkSSR Academy of Sciences and candidate of economic sciences: The lack of correspondence between sectorial and territorial approaches gives rise to many negative phenomena. The primary one is the discrepancy between the levels and rates of development in the physical production sphere and the service sphere. Recent experience has shown that this problem can be resolved most fully with the help of comprehensive plans for economic and social development.



When speaking about the mechanism of combining sectorial and territorial principles of management using comprehensive plans for economic and social development, two stages can be distinguished: pre-planning development work and the compilation of a plan draft with its subsequent confirmation at a session of the Council of People's Deputies.

Here we followed the course of the substantiation and introduction of a new document--the basic directions for economic and social development--which is drawn up a year before the development of the plan draft.

Along with an estimate of indicators for the city's economic and social development, we include in the basic directions specific assignments for associations (enterprises) and institutions to coordinate issues with their ministries and departments that should in the future be included in the plan.

Professor F. D. Zastavnyy, department chief at the UkSSR Council for the Study of Productive Forces under the UkSSR Academy of Sciences and doctor of geographical sciences: With the aim of improving the organization of recreation and medical care for the public, and increasing the efficient development of the sanatorium and health spa services throughout the country and in individual regions, it would be a good idea in the very near future to work out national guidelines for the development and rational territorial organization of health spa services, which would be used in the future to work out territorial special comprehensive programs for the development of health spa services in various regions.

The transition to a primarily territorial principle of management requires that the numerous organizations and institutions in health spa services that have no common departmental supervision and the accompanying facilities be united, and the corresponding resources be concentrated in the hands of a single manager, such as the executive committees of Councils of People's Deputies.

Professor I. M. Raznotovskiy, doctor of legal sciences (State and Law Institute of the UkSSR Academy of Sciences): Law plays an important role in solving the problem of the proper combination of sectorial and territorial planning and management of the national economy. In the new legislation that is being drawn up, it seems that it is necessary to provide a clearer definition of the place and meaning of regional comprehensive plans in the system of state plans for economic and social development, to recognize them as an organic part of the union republics' plans, and to determine the initial data and deadlines for the development of drafts of comprehensive plans. The drafts of these plans should be drawn up prior to the compilation of sectorial plans so that the plan quotas for enterprises and local organs not under any departmental jurisdiction contained in them (for a certain set of indicators established by law) can be taken into account by higher organs in the final formulation of sectorial plans.

A. P. Myasnikov, chief economist at the Poti Territorial-Sectorial Association: Territorial organs that perform coordination functions in a region should not only have a certain set of rights, but also the necessary material resources and organizational means. Only under these conditions can they carry out the

functions they have been assigned with respect to coordinating the operations of enterprises and organizations under the jurisdiction of various organs.

Within the framework of statewide measures aimed at all-round improvements in the national economic management system, an experiment is being conducted in Poti to improve territorial management and strengthen the influence of the Council of People's Deputies on the proportional and balanced development of the city.

The Poti Territorial-Intersectorial Association was created under the gorispolkom in order to carry out the basic goals of the experiment. The statute on the association was confirmed in a decree issued by the Georgian SSR Council of Ministers in April 1982. The association is subordinate to the Georgian SSR State Planning Committee and the gorispolkom. The association's activities are aimed at ensuring the maximum contribution on the part of enterprises and organizations under various departments to the successful achievement of the dual goal of management of the city's development--an all-round, steady rise in the workers' welfare and stable growth in national production efficiency, taking into account specific conditions and participation in the social division of labor.

Resolution of the major goals facing the association is possible only through efficient utilization of administrative and economic methods of management. Economic methods, especially cost accounting, play a dominant role here.

V. I. Yakimenko, secretary of the Donetsk Oblast Trade Union Council and candidate of economic sciences: Two directions in the management activity of labor collectives merge on the course of increasing the influence of labor collectives in all spheres of our life, and particularly in production management: in the sphere of labor and social activity, and outside the collective, in interaction with other institutions of socialist democracy. There are unsolved problems in the cooperation between trade unions and Councils. When concluding an agreement with local organs, a labor collective, as a rule, is the responsible party, and for all practical purposes cannot call the Council to account for unkept promises. It is time to allow the labor collective to exercise this right, as stipulated in the Law on Labor Collectives.

It would be good for Councils to move more decisively to break down departmental barriers and find a common language with ministries in order to unite the efforts of labor collectives, for example, in the construction of social-use projects. Due to poor coordination of their efforts, the development of a recreation area along the coast of the Azov Sea, for example, has stagnated.

Yu. I. Shilin, department chief at the Material and Technical Supply Scientific Research Institute under the USSR State Planning Committee and candidate of technical sciences: In organizational terms, the system for managing material and technical supply is practically the only one of the national economic management systems in which the elements of both sectorial and territorial balance in national economic plans are realized consistently.

The current trend toward increasing the economic independence of enterprises in the planning of production activity poses a number of problems for this type of system that must be resolved. First of all, there are tasks involving an increase in the role of delivery plans. Fulfillment of these plans reflects the national economic results of the activity of industrial enterprises. However, up until now they do not have the same directive force as production plans. At the same time, their intensity determines to a significant extent the effectiveness of production planning.

L. A. Milshteyn, scientific secretary of the UkSSR Scientific Council on the Complex Problem "Optimal Planning and Management of the National Economy" and candidate of economic sciences: Scientific substantiation for combining sectorial and territorial management is a top priority today. As the composition of the round table participants indicates, scientific research in this direction is being carried out in all the republic's major industrial regions. One can already identify a certain regional focus in this research. For example, scientists in Kiev and Donetsk are concentrating on problems involving the development of large industrial cities, scientists in Kiev, Lvov, and Odessa are focusing on issues dealing with improving the utilization of recreation areas, people in Dnepropetrovsk and Zaporozhye are study problems involved in reducing the proportion of manual labor, scientists in Lvov and Dnepropetrovsk are studying quality management, other scientists in Donetsk are focusing on the introduction of advanced methods and improved regional management of scientific and technical progress and comprehensive utilization of secondary resources, scientists in Kiev and Odessa are studying the legal foundations for combining sectorial and territorial management, and so on.

Unfortunately, the study of the problems involved in combining sectorial and territorial management is concentrated primarily in the republic's academic institutions and in the UkSSR Ministry of Higher and Secondary Specialized Education. Many sectorial institutes are still not participating enough in research on this problem. For this reason improving the coordination of scientific research and especially the inclusion of sectorial science are among the most important tasks of our Scientific Council, other scientific councils, the UkSSR State Planning Committee, and the republic's Academy of Sciences.

Participating in the discussion were: L. S. Norenko, deputy chairman of the Donetsk Gorispolkom; G. P. Vypov, deputy director of the Computer Center of the Industrial Economics Institute of the UkSSR Academy of Sciences and candidate of physical-mathematical sciences; N. S. Popovenko, dean of the Engineering Economics Faculty of Odessa Polytechnical Institute and candidate of economic sciences; S. Ya. Salyga, docent at Donetsk Polytechnical Institute and candidate of economic sciences; V. F. Stolyarov, sector chief at the Economics Scientific Research Institute under the UkSSR State Planning Committee and candidate of economic sciences; O. A. Turetskiy, department head at Odessa Food Industry Technological Institute and candidate of economic sciences; N. N. Novoshitskiy, docent at Donetsk State University and candidate of legal sciences; N. S. Khludneva, department chief of the Donetsk Oblast Planning Commission; L. I. Tsesaruk, docent at Donetsk State University and candidate of economic sciences; Ye. V. Peleshchuk, docent at Odessa Polytechnical Institute and candidate of economic sciences; A. G. Kozlov, department head at Ternopol Finance and Economics Institute and candidate of economic sciences;

V. V. Yatsura, docent at Lvov State University and candidate of economic sciences; V. V. Khristianskiy, dean of the Economics Faculty of Donetsk State University and candidate of economic sciences; M. M. Tkachenko, sector chief at the Krasnodar Affiliate of the All-Union Standardization Scientific Research Institute; and N. I. Pakhomova, instructor at Odessa Polytechnical Institute.

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## REGIONAL DEVELOPMENT

### AGANBEGYAN HIGHLIGHTS SIBERIAN DEVELOPMENT TARGETS

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[Article by Academician A. Aganbegyan, director of the Institute for the Economics and Organization of Production Under the Siberian Division of the USSR Academy of Sciences: "The Development of Siberia's Productive Forces"]

[Text] Scientists and specialists presently forecasting the development of Siberia and the Far East are endeavoring to establish in the greatest possible detail the scale and direction for improving the economic structure of this region. The state, as was emphasized at a meeting of the CPSU Central Committee on the questions of accelerating scientific and technical progress, in the future will not shirk funds for Siberia's development.

The development of the productive forces in Siberia which makes up almost one-half of the territory and where a large portion of the nation's raw material resources is concentrated, has always held a prominent place in the economic strategy of the Communist Party and the Soviet state. V. I. Lenin in April 1918 proposed the elaboration of a comprehensive plan for connecting the iron ores of the Urals with the coal of the Kuznetsk Basin and drew attention to the importance of studying the hydropower resources in Siberia. "The exploitation of these natural riches by modern equipment," wrote Lenin, "will provide the basis for unprecedented progress in the productive forces."

The development during the first five-year plans of the Urals-Kuznetsk Combine marked the beginning to the development of a powerful industrial area, the Kuznetsk Basin, in the south of Western Siberia. The pioneer of Siberia's industrial development, the Kuznetsk Metallurgical Combine, over the last prewar year cast 2.3 million tons of steel. Siberian machine building and metalworking began to develop on the basis of Siberian metal immediately prior to the war.

During the harsh years of the Great Patriotic War, Siberia established a powerful industrial base. Even in 1942, in comparison with 1940, the output of defense products in Western Siberia had increased by 27-fold. An aviation, tank and ballbearing industry had arisen here, and almost one-half of the steel was cast for the tank industry. One out of every two tons during those years was produced using Kuznetsk coke. During the war years, as a whole

industrial production in Western Siberia increased by 2.7-fold and in Eastern Siberia by 28 percent.

After the rebuilding of the war devastated economy in the Western regions of the nation, a new stage of Siberia's development commenced. After carrying out the first major regional comprehensive program for the development of the productive forces in the Eastern regions of the USSR, that is, the creation of the Urals-Kuznetsk Combine, from the 1950's a new industrial region in Siberia began to be developed on its eastern flank. In particular, the Angara-Yenisey Program began to be carried out; this had been prepared by scientists and specialists even in the prewar years. It was a question of setting up a chain of powerful territorial-production complexes (TPK) which would be formed around the major hydropower plants on the Angara and the Yenisey as well as thermal power plants operating on Siberian coals. The Irkutsk-Cheremkhovo, Central Krasnoyarsk and Bratsk-Ust-Ilimsk TPK were organized, the Sayan Complex was formed and the Norilsk Industrial Region began to develop rapidly in the Far North.

Eastern Siberia over the last 15-20 years has become the nation's main source for the production of aluminum, nickel and other nonferrous metals. Here is concentrated the greatest lumbering capacity and here they have built the nation's largest lumber industry complexes producing pulp and other products from the complete processing of the wood. A center of the petrochemical and chemical industry has arisen, and the world's largest system of hydropower plants has been built. This region has become one of the main producers of electric power in the nation and here highly developed machine building is arising. During the years of the 11th Five-Year Plan, the Kansk-Achinsk Fuel-Power Complex (KATEK) began to be developed and this will become the main region for the mining of brown coal in the country and for producing cheap electric power at super-powerful thermal power plants with a unit capacity of 6.4 million kilowatts. The first new generation open pit mine, the Berezovskiy Section-I and the Berezovskaya GRES-1 near it are major construction projects of the five-year plan. Their first capacity will be completed in the current year.

The creation of the Western Siberian oil and gas complex was the third and largest national program for the development of the Eastern region's productive forces. The first million of oil were produced here in 1965 and in 1970, 31 million tons were extracted. Ten years later, oil output was 312 million tons and according to the 1985 plan, 395 million tons of petroleum should be produced, including gas condensate. At present, this region in a single day produces more than a million tons of oil, almost two-thirds of the daily output of "black gold" in the nation. Let me point out that the Siberians mined their first billion of petroleum in just 14 years while in Tataria, where the territory was better developed and the climatic conditions are more favorable, this required 35 years and in Azerbaijan more than a century.

Natural gas output has been growing at even more rapid rates. The first cubic meters of gas were produced here in 1964 and in 1980, the nation received 156 billion m<sup>3</sup> of it. Recently the Siberian gas workers have crossed the billion cubic meter line for daily gas output. Over one-half of the nation's blue

fuel now comes from Western Siberia. Thus, in the shortest historical time and under severe climatic conditions, amid the swamps and tundra of the Western Siberian Plain, the world's largest oil and gas area has been formed and it presently provides all the increase in the fuel and energy resources of the USSR.

Siberia is one of the main coal-bearing areas. The Kuznetsk Basin produces the nation's cheapest hard coal and turns out the cheapest coke. This promising basin has reached an output of 150 million tons a year. Due to the rapid development of the oil, gas and coal industry in Siberia, last year they produced more than 1 billion tons of fuel units here. A large portion of the coal, oil and gas is presently delivered to the European USSR and a certain amount to the socialist countries in accord with the Comprehensive Program for the Economic Integration of the CEMA Member Nations. A certain portion of the fuel is sent to capitalist states in exchange for convertible currency.

The output of hydrocarbon raw materials in Western Siberia has provided a powerful impetus for the predominant development of major petrochemical production here. Over the last decade the Omsk Petrochemical Complex has grown markedly, major capacity has been completed at the Tomsk Chemical Plant and the first units have begun operating at the future flagship of the petrochemical industry, the Tobolsk Petrochemical Combine.

At the same time, great attention has been given to the development of the technical base for tapping Siberia's natural resources. The electrical engineering industry, primarily in Novosibirsk, has undergone accelerated development. The first capacity of the Krasnoyarsk Heavy Excavator Plant has gone into operation. At Krasnoyarsk and Sosnovoborsk, enormous plant buildings have gone up for producing truck trailers and the Minusinsk Electrical Engineering Complex is under construction. The Abakan Railway Car Building Plant annually will provide railroad transport with tens of thousands of large-capacity cars. Machine building plants are also being expanded in Omsk, Kemerovo, Tomsk, Krasnoyarsk, Rubtsovsk and other Siberian cities.

A major point in the development of Siberia's economy during the 11th Five-Year Plan was the opening up, in accord with the decisions of the 26th Party Congress, of through traffic along the entire extent of the Baykal-Amur Mainline [BAM]. This great construction project is ahead of schedule. Over the 10 years which have passed since its commencement, an enormous unprecedented amount of work in transport construction has been carried out. Across impassable taiga, mountain passes, hundreds of rivers and streams, a steel line has been laid which has opened the path to enormous natural riches in an enormous economic development zone of 1.5 million km<sup>2</sup>, the BAM zone. The construction of the BAM and the development of the productive forces in the regions adjacent to it are the fourth major national program for the development of the productive forces in the East of our nation.

The BAM is a multipurpose road. It is not only a transport artery which shortens the route by 500-800 km for the delivery of people and freight to the north of Khabarovsk Krai, to Komsomolsk-na-Amure and via the Port Vanino to Magadan Oblast, Kamchatka, Sakhalin and Chukotka. The role of the BAM is enormous in developing the natural resources in a vast area which this



railroad has opened up. At the same time, the BAM is a new base mainline for developing the northern regions where great riches are concentrated. The recently taken decision to lay a railroad from the BAM north to Yakutsk makes profound sense.

According to the decisions of the 26th Party Congress, along with the further development of industry and transport in the eastern regions of the nation, great attention is to be given to providing the population with food products and industry with agricultural raw materials. There is a sufficiently large base for this here with agricultural land comprising 65 million hectares with around one-half of this in Western Siberia. Agriculture has been particularly developed in Altay Kray, Novosibirsk, Kemerovo and Omsk Oblasts. The rural workers in the Eastern regions have made great advances in the development of this sector of the economy. Thus, the fields and farms of Siberia produce one out of every six tons of grain, potatoes, vegetables, milk, meat and other products produced in the Russian Federation. The Far East is our nation's main producer of the Amur "pearl," soybean containing a very high percentage of protein.

In accord with the USSR Food Program adopted at the May (1982) Plenum of the CPSU Central Committee, the agricultural workers in the region are confronted with tasks of ensuring a further rise in the effectiveness of all agricultural sectors in the aim of dependably supplying locally produced food for the rapidly growing population. For successfully carrying out the Food Program measures in the Eastern regions, the state has allocated enormous capital investments and has constantly increased the deliveries of new equipment as well as mineral fertilizers. During the current five-year plan alone, capital investments for strengthening the physical plant of agriculture and for the social reorganization of the region's villages will be over 20 billion rubles, or approximately 30 percent of all the investments allocated for these purposes in the RSFSR. Such measures, undoubtedly, will make it possible to substantially increase the level of mechanization and chemization for the production processes in the Eastern region's agriculture.

In the decisions of the 24th, 25th and 26th CPSU Congresses and a number of the subsequent plenums of the party Central Committee on economic questions, one can trace a constant concern for the importance of intensive development in the nation's Eastern regions and the fuller utilization of their natural riches. This notion conforms to the party's general demands for accelerating economic development. "The task of accelerating the growth rates, and a substantial acceleration," commented Comrade M. S. Gorbachev in the report at the April (1985) Plenum of the CPSU Central Committee, "is completely feasible, if at the center of all our work is the intensification of the economy and the acceleration of scientific and technical progress, if management and planning as well as the structural and investment policy are reorganized, organization and discipline increased everywhere and the style of activity improved fundamentally."

Soviet scientists, including scientists from the Siberian Division of the USSR Academy of Sciences, are focusing their efforts on accelerating scientific and technical progress and the rational planning of development for the productive forces. They have been and are confronted with many important tasks the



execution of which is possible only on the basis of a profound analysis of the region's economic and social features. Thus, even in the 1970's, upon recommendations of the scientists, an optimum model was adopted for the development of Siberia's productive forces considering the presence of a fuel-energy and raw material base here and the possibilities of concentrating a broad range of energy-, electricity- and water-intensive production of national specialization and a number of other sectors, in particular machine building and light industry. The demographic features of the region were also taken into account, that is, the limited labor resources. In attempting to implant labor-intensive sectors here, this merely prevents the carrying out of the main task of developing the national specialization sectors. An exception can be made only for those machine building sectors which are oriented at creating nonstandard or little-transportable products needed for tapping the natural riches of Siberia: chemical, petroleum, mining and electrical engineering equipment, heavy excavators and so forth.

In carrying out the party's decisions and the recommendations of scientists, workers from the Eastern regions have created and are continuing to develop the nation's power and fuel base, primarily by developing the oil and gas deposits of Western Siberia. At the same time, energetic measures are being taken to predominantly develop the coal industry in Siberia. A re-evaluation of the coal reserves made in the Kuznetsk Basin has shown that in basically maintaining the existing mining and geological conditions, coal mining in this basin can be increased from the present 150 million tons to 500-550 million tons in the 21st Century. Here the cost of the Kuznetsk coal even now is 2.5-fold less than in the Donets Basin while proportional capital investments are 3-4-fold less.

Siberia is becoming the center of the nation's brown coal industry and this is linked to the development of the Kansk-Achinsk Brown Coal Basin. The coal reserves found here exceed 600 million tons and a significant portion of them can be strip-mined from large open pits. Over the long run, this basin could produce 350 and more million tons a year. There is the possibility of effectively employing the Kansk-Achinsk coals for burning in large power units. At the same time, in terms of their chemical composition they are suitable for processing into a synthetic liquid fuel.

The concentrating of energy-intensive production in Siberia will depend primarily upon the successes in the development of electric and thermal power. As is known, Siberian power has substantially lagged behind in the development of the fuel industry and the region still has a scarcity of fuel and electric power. In order to overcome this and establish good conditions for attracting power-intensive production to Siberia, it is essential to accelerate the construction of the large power plants of the KATEK, having organized here three construction flows in parallel: at the Sharypovo base (now the town of Chernenko), Nazarovo and on the eastern wing of the KATEK. At the same time, it is essential to strengthen the construction of TETs in the industrial centers of Siberia. It would be advisable to sharply increase the rate of central gas delivery in the region, to build a second large Tyumen--Kuzbass Gas Line with the delivery of gas to Novosibirsk Oblast and Altay Kray and subsequently to Krasnoyarsk Kray, as well as build a gas line to Omsk from the Eastern Siberian deposits. We must also continue the construction of the

highly efficient hydropower plants, primarily on the Yenisey and its tributaries.

There are also extensive projects for the development of the pulp industry in Siberia, particularly in the regions of the Lower Angara and Middle Yenisey, where millions of cubic meters of high-grade wood are scrapped due to its incomplete utilization. A major shift must be carried out in the development of power chemistry, as precisely Siberia with its cheap fuel and energy resources, hydrocarbon and other chemical raw materials, should become a base area in the nation for the development of the chemical industry.

Our nation employs an optimum intersectorial, interregional mathematical-economics model for a thorough study of Siberia's place in the unified national economic complex. In the model are represented all the nation's regions and all the sectors of their economy, the production ties between them have been considered as well as the existing and future constraints on labor resources and capital investments. Long-range calculations using this model make it possible to determine the specialization of each region in such a manner that the obtained development version would ensure the most rapid growth of the Soviet people's prosperity as a whole.

In examining the question of the economic effectiveness of the Siberian economy, it is essential to bear in mind that along with the cost-increasing factors such as increased wages for workers, additional funds for the creation of an infrastructure, the poorly developed road network and high transport costs, it also has cost-reducing factors. These include: cheap fuel and power, the presence of large resources of fresh water, the high technical and economic characteristics of the raw materials, the favorable mining and geological stratification conditions and the high concentration of natural resources, the presence of a sufficient number of large, advantageously positioned areas for the location of industrial enterprises. Here the resources of different raw materials in Siberia often are located on a single territory and this makes it possible to employ them jointly on the basis of a unified production and social infrastructure.

The tendency for a greater role to be played by the Eastern region in the unified national economic complex is inseparably tied to the specific social development of Siberia, that is, its presently insufficient economic development and the sparse settlement of the territory. Calculations carried out with the above-mentioned model have shown that the national economy is interested in moving a portion of the manpower from the European regions and Central Asia to Siberia and the Far East. However, the migration of the population is a voluntary matter and it can be controlled only indirectly, by creating in the Siberian regions a better range of living conditions in comparison with the long inhabited regions.

Considering this, our party and the Soviet government have initiated serious measures for the accelerated development of housing and municipal construction in the Eastern regions. Thus, in Western Siberia over the last 10 years the completion of housing has risen twice as fast as for the USSR as a whole. Living conditions for the region's rural inhabitants have been substantially improved, although they still are significantly behind the urban population.

Recently, extensive programs for the development of consumer services have been carried out in the cities and villages of Siberia, measures have been adopted to strengthen and further develop the schools and the network of cultural institutions has been expanded. The volume of per capita retail trade for the rural population, for example, here has increased by 2.5-fold over 15 years while the value of consumer services provided to the population has risen by 3-fold. Of course, many problems in this area have still not been resolved, but the positive shifts are obvious.

As a whole, Siberia's economic and social development is occurring successfully, although the tapping of this enormous region has encountered a whole series of problems and difficulties. For solving and surmounting them the concentrated efforts of millions of people are needed. There must be intense and enterprising, honest and conscientious labor by each person, from the worker to the minister, from the engineer to the academician. This is the party's position and this is supported by our nation's workers in word and deed.

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GENERAL

PROPORTIONALITY, STRUCTURAL CHANGES IN ECONOMY REVIEWED

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[Article by G. Sorokin, correspondent member, USSR Academy of Sciences: "Proportionality and Balance in the Socialist Economy\*"]

[Text] In research on the proportionality of the socialist economy, less attention has been given to questions of the economic nature, historical conditions and factors in the development of proportions, their priority, possible time frames and mechanisms for changing the relationships between stages of reproduction, sectors of the economy and regions in the country than has been given to other questions.

Proportionality is a definite relationship between parts of the national economy, encompassing economic and social processes. The category "proportionality" is a partial manifestation of the category "economic structure". According to Marx, the economic structure of society is the totality of production relations.<sup>1</sup> Developing in interaction with productive forces, they form a branching network of relations to production, distribution, exchange and consumption of the social product, and people's participation in social labor. These relations show the place of each stage, sector and economic region in social reproduction, the situation of classes and their economic interests. The linkages between components of the social product and classes which objectively exist in the reproduction process characterize the economic structure and, when the linkages are commensurable, the main economic proportions.

As a rule, bourgeois economics technicalize the economic structure and proportionality, ignoring class and social aspects. Thus, W. Leontief views structure as a system of relations, "...with the help of which a unit of resources is used to satisfy any economic demand."<sup>2</sup>

Structure manifests itself through proportions, reflecting the quantitative dependence between individual elements. Structure and proportionality interact with one another as essence and phenomena. Essence is deeper and more abstract, while phenomena are more concrete and richer. In a number of cases structural changes and changes in proportion coincide. The study of proportions independently of society's economic structure and social processes does not show objective tendencies in their development and leaves the most important proportions outside the framework of scientific study.



The system of economic and techno-economic proportion evolves in accordance with the nature of the social formation, its needs and patterns of development. A socialist economy has a system of proportion differing from a capitalist one. Socialist ownership of the means of production concentrates resources in the hands of the state, making possible their planned direction towards the formation of optimal ratios between different spheres of production, sectors and regions and eliminates bottlenecks and prevents disproportions. Socialist planning is distinguished by proportional development and a lack of crises. Economic and technical progress causes changes, the formation of new and the disappearance of outdated linkages. This gives constant urgency to structural problems on a theoretical and practical level.

As a rule, in the scientific literature proportionality is made to depend upon social requirements or the division of labor.<sup>3</sup> Either one focuses attention upon important factors in economic proportionality, but these circumstances do not exhaust the rich concrete historical conditions of the origin and development of various proportions. They are always historically conditioned.

Social needs determine the division of labor, which is linked to the structure of society. "Social needs, that is, use value on a social scale -- these determine the share of all social worktime which goes to various special spheres of production."<sup>4</sup> However, needs and social labor evolve differently under socialism than they do under capitalism. They form their own special level and structure devoid of antagonisms. The world of needs is richer under socialism and rapidly grows in accordance with the basic law of socialist society. It is therefore theoretically and practically insufficient to generally indicate their role in the formation of proportionality.

Needs are differentiated into production and personal ones. In view of their higher level of socialization, production needs under socialism are subjected to a precise accounting on a national economic scale and the planned circulation of the means of production forms the basis of production proportions. As far as personal consumption is concerned, Marx established three types: effective [platezhesposobnyye], real and absolute.<sup>5</sup> They also have their place under socialism.

Effective needs respond to the socially established level of consumption and are supported by resources. They include inequalities in consumption by population groups, caused by the distribution of the quality and quantity of labor and compensate for outlays for the expanded reproduction of labor power. This form of consumption is basic in planning proportions between the population's consumption (incomes) and increases in the production of goods and services.

Real needs are equal to the needs of all members of society and are therefore greater than effective demand. They have already been formed, but still exist as a potential. The study of this form is important for substantiating large social measures, such as increasing the incomes of low paid social groups, improvements in pensions, etc.

Absolute needs are rational needs, consisting of optimal, from a contemporary scientific perspective, conditions for the expanded reproduction of labor power, the all-around development of workers and the formation of the socialist way of life. These are ideal needs towards which we should strive. Their study is necessary for the development of a strategic line for improving workers welfare and compiling long term plans. The boundaries between different types of needs are movable and elastic. As incomes are equalized and prices decline real needs approximate effective demand, while if production and welfare increase rapidly there is less distance between absolute, real and effective needs.

Personnel and production needs form a system of needs through which the division of labor and the practical organization of production determine a system of proportions. Marxist-Leninist theory studies needs in connection with the entire organization of social production and the reproduction process, i. e. development. The system of needs is based upon the entire organization of production.<sup>6</sup> Social needs "...are conditioned mainly by relations of different classes to one another and their relative economic position... absolutely nobody is in a position to explain the relation of supply and demand, until they have discovered the basis upon which this relation rests..."<sup>7</sup> The isolated study of proportions can lead to false conclusions. "Neither can one refer to 'needs', without understanding the reproduction process...."<sup>8</sup>

The systems of needs in the transition to socialism and under socialism are different. The sharp break in prerevolutionary proportions caused by the construction of socialism was replaced by gradual improvements in proportions primarily in the interests of improving public welfare. Only an historical approach to them as a phenomena developing in close contact with the reproduction process assures the scientific planning of proportions. "No completely established "proportionality" relations exist, there is only movement."<sup>9</sup>

The same methodological requirements made upon the study of proportions should also be made upon the study of the division of labor. It is not sufficient to generally point out the division of labor as the reason for the formation of proportionality. It explains some common extrahistorical features of reproduction, but not the specific features of its types. These common definitions include the division of society into opposing classes and the overcoming of this division. The division of labor, taken in its general form, characterizes the state of productive forces in various eras. However, as soon as it encroaches upon the area of production relations, it ceases to be a common form and appears as the capitalist or socialist division of labor.

The socialist division of labor is determined by the specific needs of socialist society, social ownership of the means of production and the growth of socialization and the scientific-technical revolution. Under socialism the division of society into exploiters and exploited is liquidated and there is a gradual elimination of the residues of the capitalist division of labor between city and countryside, mental and manual labor. There is a new combination of sectors of labor, which becomes ever more socially homogenous,

functioning in a planned and crisis free manner. Under socialism it is possible to have different combinations in the distribution of social labor, but this should be planned. Progressive proportions will assure savings in total labor outlays.

A special stage in the development of the socialist division of labor and socialist proportionality is linked to the formation of a unified national economic complex. Traditionally, reproduction is studied relative only to material reproduction. This is a study of the proportion of material production and the division of labor between its sectors. A unified national economic complex has a new combination of sectors, new economic proportions arising in addition to those evolving in the course of socialist construction. In addition to material production and its proportions there is a "second type of production"<sup>10</sup> -- the sphere of the reproduction of labor power, or, as it is usually called, the social-cultural service sphere. This includes a sizable number of sectors in the nonproductive sphere, and its structure also changes. Workers in the unified national economic complex make up a "collective worker" in socialist society. The proper combination of all labor sectors for the collective worker, and improvements in labor productivity in all subdivisions are the second task for developed socialism.

The study of proportions in the national economic complex requires not only an analysis of material production, but of factors outside it, a study not only of distribution, but of redistribution. The scales of redistribution and its influence upon proportionality are great. Thus, the norms for surplus product and its primary distribution as a result of redistribution processes differ by 38 percent.<sup>11</sup> This is roughly the difference between monetary earnings and earnings plus supplementary payments and subsidies.

Production proportions in the economy of developed socialism are increasingly influenced by the scientific-technical revolution. Technical progress divides production into elementary operations and thus causes the further social division of labor. Progress in productive forces changes the combination of material production sectors, the relationship of factors in production growth and the division of labor at enterprises. K. Marx noted that production proportions are determined by technology: "The proportions in which the production process can expand are not set arbitrarily, but are determined by a given technology."<sup>12</sup> Technology has the greatest influence upon machinery building (new enterprises, computers, robots, electronics, outer space, nuclear machinery building, etc), and upon the chemical industry. It also influences other industrial sectors.

Under contemporary conditions the search for and productive use of new types of raw materials, energy sources and environmental protection measures are important factors in structural changes. Thus, oil, gas and nuclear energy change the proportions of the fuel and energy complex and the chemical industry, synthetic fibers change the textile industry, the previous gift of water has been changed into an important raw material, its use and restoration (purification) creates new sectors of industry. The regulation of ties between them and the national economy has been a complex problem.



Historically conditioned needs and the division of labor are an objective basis of proportionality. The planned activity of society, and the economic mechanism of the socialist state, operating in accordance with the objective requirements of social development are an important factor in proportionality improvements under socialism.

One can present a logical sequence of interaction between needs, the division of labor, economic structure and proportionality. First there are needs, their differentiation leads to the division of labor, which takes place with special rapidity due to technical progress. The organization of production in accordance with needs and requirements for the division of labor directly forms the national economic structure and determines its proportions. In life there is no clear sequence between stages in the formation of proportions although they are all unavoidable and the above sequence is, in the final account, necessary.

Stages in the formation of proportions interact. There can be breaks and delays between them due to changes in proportions. This process takes place simultaneously at all stages, each of which can, at a given time, serve as an initial impetus for development. The logical sequence of changes in proportions is applicable to any social type of public production, however the mechanisms and social consequences differ.

In the economic literature it is often stressed that under socialism production is directly subordinate to needs. This is true. However, it is equally true that to satisfy needs it is necessary to know the patterns in their formation, to organize production in accordance with the laws of the division of labor and social progress, to prepare the necessary means of production and cadre. This takes a definite amount of time. Experience in the planning of proportionality shows how to overcome the distance between defining goals and reaching them.

Proportions are historically conditioned, but the significance of various proportions is determined by their role in the economic development of society.

The structure and proportions of developed socialism and the economics of the period of a socialism which has, on the whole, been built, differ considerably. Changes in proportions have touched upon all spheres of economic activity and have developed and strengthened the economic structure. Practical experience in socialist construction revealed the time periods for structural transformation relative to postwar conditions and urgently posed the question of simultaneously planning interrelated structural changes, taking into account social and production tasks. As a rule, proportions are connected and "...moves beyond the limits of existing proportions in one sector of production push all sectors beyond the bounds of these proportions and lead to different relationships."<sup>13</sup>

The contemporary structure of the Soviet economy is characterized by a consolidation of collaboration of working classes based upon socialization, the planned organization of production, exchange and distribution, increases in the size of the working class and improvements in its role as organizer of



the further development of socialism, improvements in the socialist division of labor and the gradual transformation of all types of labor into socially homogenous labor. An important element of the postwar structure is heavy industry's capability of accelerating economic growth and technically reconstructing the national economy. There are clearly delineated changes in agriculture, where purely economic processes are intertwined with social ones. There has been a radical redistribution of accumulation in agriculture's favor. Heavy industry's achievements and agriculture's growth have made it possible in the 11th Five-Year Plan to have faster development rates for light industry than for heavy. Postwar economic development has been directed towards greater satisfaction of workers' needs. There has been an increase in the share of income going to consumption. There are high and stable levels of financing for residential construction, education and health care. The country's eastern regions have been converted into a powerful industrial and agricultural complex, supporting not only their radical transformation, but also many general state needs, including foreign trade. The international socialist division of labor is developing steadily. There have been increases in foreign trade's role in satisfying production and consumption demands. Within the framework of general shifts in the economic structure it is important to trace the nature and time of specific proportional changes in various sectors of the national economy.

Even a cursory survey shows the progressive character of the structural changes in the USSR economy. One can say, that a socialist type of proportionality has, on the whole, been reached. Under favorable conditions structural shifts can rapidly assist in accelerating the country's economic progress. At the same time, we have not yet overcome some deep social and economic disproportions which have been inherited from the past (between mental and manual labor, city and countryside, industry and agriculture). These can be completely overcome only over a long period. There are also partial economic disproportions such as, for example, lagging in transportation, personal services and unmet consumer demand for a number of goods.

The new tasks of economic construction in the 12th and subsequent five-year plans, raising labor productivity to the world's highest and improving the levels of welfare require the restructuring of the national economy, first of all industry. Accelerated development requires that sectors support scientific-technical progress and that agriculture further increase the production of consumer goods.

A study of proportions makes it possible to conclude that: The higher the level of generalization and the greater the time and resources spent upon structural changes, the less time it will take to make marked structural shifts. On the other hand, the more specific the various proportions and the fewer the factors influencing them, the smaller the outlays required for structural changes and the sooner one can expect significant results.

The proportion between accumulation and consumption is one of the most important economic generalizations. Changing it requires significant shifts in the economy. Even small moves to one side or the other mean a lot here. Planned measures for increasing national welfare led to shifts in the

structure of national income utilization in the 10th Five-Year Plan. During 1976-1980 consumption amounted to 72.9 percent compared to 73.2 percent in the 9th Five-Year Plan. There has been a substantial increase in the share of household property in total national wealth. By the end of 1983 it was about one-fifth of total national wealth. The manifestations of wage levelling and unfavorable relationships between incomes and labor productivity are negative aspects of distribution.

Considerable time is required to make changes in some major proportions in industry. Over 14 years (1970-1984) the share of production of the means of production (Group A) and consumption goods (Group B) was practically stabilized, while in 1981, 1983 and 1984 there were small increases in the share of Group B. Over 13 years (1970-1983), while output increased by 98 percent, the processing industry's production increased 103 percent and the extractive industry's output grew 43 percent. Over 23 years (1960-1983) the share of machinery building and metal working grew from 16.6 percent to 26 percent (the annual growth is measured in tenths of percentage points), while that of the chemical and petrochemical industry grew from 3.9 to 6.5 percent. As can be seen, structure has inertia. This must be taken into consideration when compiling plans. In order to this change structure, there should be high growth rates for priority sectors.

Structural changes require long term plans. Changes in sectors' shares are not a goal in themselves. They should be viewed only as a means of achieving a progressive structure. At a given time each country has its own optimal structure. However, with similar conditions for the development of individual sectors of industry, the structure of developed countries can serve as a guideline for planning.

Structural policy is an important tool for intensifying and improving the efficiency of the national economy. Each structural change is justified if it is effective and improves the efficiency of the national economy as a whole. In studying the efficiency of structural shifts, the same problems arise as do when studying efficiency as a whole (the selection of criteria and indicators, calculating effects, outlays, etc), but there are certain peculiarities. The efficiency of structural shifts, similar to the efficiency of the economic as a whole, is divided into social efficiency and economic efficiency. There are structural shifts, the importance of which cannot be directly presented in techno-economic calculations. For example, increases in the percentage of housing, education, health, measures to improve working conditions, etc. do not directly affect growth in national income, although they are very important for improving labor productivity and have an indirect material effect (product). The main criterion for the efficiency of structural shifts is their social significance. Improvements in social efficiency are an obligatory condition for structural changes. The economic efficiency of structural changes is usually reduced to the savings in total outlays for a given output under the old and new structure (sectoral, reproduction, territorial, etc). Increases in the share of more efficient sectors and regions have a positive effect upon system efficiency. This is the direct advantage of structural shifts. According to data from the intersectoral balance for 1960-1972, the direct effect of shifts in sectoral structure accounted for about 13-20 percent of total improvements in the efficiency of

labor resource and fixed productive capital use. However, one must keep in mind the indirect effect -- efficiency improvements in sectors processing lower cost products.

Economic structure and proportions and their linkages to reproduction are presented in the national economy balance, which has historically arisen as a practical application of the Marxist scheme for the realization of the social product. Although it has subsequently acquired some additional tables, it mainly involves material production and the realization of the social product. Even today, the analysis and realization of the social product remains an important planning task.

In the 1940's and 1950's theory could only reveal those features of reproduction which were inherent to a socialism which was, on the whole constructed. Thus. N. A. Vozsenskiy reckoned that expanded socialist reproduction was growth in the total social product, increases in the means of production, growth in the working class and its wages fund, and the allocation of a certain share of the social product (profit) to the needs of socialist accumulation and major construction.<sup>14</sup> Other researchers had an even narrower view of the object of the theory of reproduction and the national economic balance. V. S. Nemchinov thought that the collective patterns underlying the creation and distribution of the total social product and national income "...were the basis of the theory of expanded reproduction."<sup>15</sup>

The national economy's structure and proportions are flexible. Consequently, there should be changes in the national economic balance scheme. The conditions of reproduction in the period of mature socialism, the new, higher level of socialization, the formation of a unified national economic complex, the development of the world socialist economic and a new approach to ecological problems all make additional demands upon the national economy balance. On a general level, this means that the balance for the production and realization of the social product should be supplemented by a balance for the reproduction and use of labor power the characteristics of the integrative economic processes in the world socialist system, the ecological balance and an analysis of distribution systems should be supplemented by an analysis of redistribution. Thus, the national economic balance could be brought considerably closer to the economic structure of developed socialist society.

In developed socialist society the reproduction of labor power as a whole, the "collective worker", is equally, if not more important than the reproduction of the social product. The national economic balance of developed socialist society should have two equal parts: a social product balance and a labor force reproduction balance. Researchers such as G. S. Strumilin understood the need for a special examination of the labor power reproduction sphere and made proposals to improve the national economy balance.<sup>16</sup> These proposals might now be supplemented and developed.

In applied planning work there have long been balances of labor resources and qualified cadre. The degree to which they are available to the national economy is an important aspect of the reproduction of labor power. However,

this does not exhaust the problem. In examining social reproduction, economic research does not give enough attention to questions of outlays for the reproduction of labor power and their efficiency.

In the national economy balance, which links material and labor outlays to reproduction, it is important to determine the composition of sectors supporting the reproduction of labor power, the cost of maintenance and the number of workers. These include: education, training of cadre, health care, physical culture, residential and communal costs, retail trade (not linked to the continuation of material production in the circulation sphere), public food service, the production and sales of services, ecological measures and improvements in working conditions. The management sector should also be partially included. It seems to us that a sample scheme for labor power reproduction should be as follows:

Item	1970	1980
1. Outlays for the reproduction of labor power, billions of rubles.		
Outlays for the reproduction of labor power in material production, total	114.6	165.8
Maintenance of labor power reproduction sphere (wages and material outlays for institutions)	48.2	88.5
2. Results of the reproduction of labor power		
Population, millions, total	241.7	264.5
Number of specialists in national economy with secondary specialized and higher education	16.8	26.8
Educational level of employed population (the of people with higher and secondary (complete or incomplete) educations per 1,000 of the population)	653	833 (1981)
Training of qualified cadre for industry and agriculture, millions	2.4	3.9
Training and upgrading of cadre at enterprises and kolkhozes, millions	18.7	41.5
Balance (shortage, surplus) of qualified worker cadre	xx	xx
Free time (weekly average per inhabitant) hours	41.2	41.9
	(start of	(end of



### 3. Efficiency of reproduction of labor power

Labor productivity in the sphere of material reproduction, percent	100.0	146.0
Labor productivity of collective workers	100.0	141.2
Norm of surplus product in distribution, percent		
Primary	134.0	143.4
Final	96.0	105.4

The schemes and calculation methodologies are conditional. They are presented to pose questions for discussion. One can draw the following conclusions: The sphere for the reproduction of labor power is expanding, reproduction outlays are growing, and efficiency is improving. This assures the expanded reproduction of labor power and the gradual increase in funds for the all around development of all members of society.

The study of the reproduction of labor power makes it possible to discover processes in the redistribution of national incomes which remain in the background when examining schemes for the realization of the social product and national income. The national income balance established personal consumption as a whole. However, incomes and consumption in the material sphere and the consumption of individuals servicing the reproduction of labor power, differ in their nature and are related to one another as primary and secondary (derived).<sup>18</sup> The total magnitude of secondary incomes is 53 percent of the first and 66 percent of total capital investments in the national economic . Although there is a tendency for secondary incomes and consumption to grow, they should be planned on the basis of primary incomes. Redistribution processes develop further through taxes on the public, various forms of fees, the use of social consumption funds and prices at kolkhoz markets. Redistribution affects primary incomes, but it is the sole source of secondary incomes, and only relative to it do many specific processes of redistribution become obvious. In planning national income use is made of data on the real incomes of workers in material production sectors and the final incomes of the population. However, this does not reveal the total sums for the reproduction of labor power, including secondary incomes and reproduction processes. Secondary incomes are also formed in the state administration and social support spheres. For this reason they are growing and it is becoming more urgent to manage them in society's interest.

#### FOOTNOTES

\* A proposal

1. K. Marx and F. Engels, "Soch." Vol 13 pp 6-7.
2. W. Leontief, "Issledovaniye struktury amerikanskoy ekonomiki" [Trans of "Studies in the Structure of the American Economy"] Moscow Statistika, 1958, p 7.
3. Thus, A. N. Yefimov thinks that "...proportionality in economic development above all means the correspondence of scales, structures assortments and quality of goods and services to current and predicted social needs." (A. N. Yefimov, "Problemy obosnovaniya gosudarstvennogo plana" [Problems in the Substantiation of the National Economic Plan], Moscow, Ekonomika 1980 pp 127-128). In N. A. Shokin's opinion, "...the sectoral structure of the national economy is part of the system of the division and socialization of labor. It is above all expressed by a general and partial division of labor." (N. A. Shokin, "Theoreticheskiye osnovy formirovaniya effektivnoy struktury narodnogo khozyaystva" [Theoretical Foundations for the Formation of an Effective National Economic Structure], Moscow, Nauka 1984 p 11)
4. K. Marx and F. Engels, "Soch.", Vol 25, Part II, p 186.
5. K. Marx and F. Engels, "Soch.", Vol 25, Part I, pp 198-199, Vol 26, Part II, p 563
6. K. Marx and F. Engels, "Soch.", Vol 4, p 80.
7. K. Marx and F. Engels, "Soch.", Vol 25, Part I, pp 198-199.
8. V. I. Lenin, "Poln. sobr. soch." [Complete Collected Works], Vol 3, p 53.
9. K. Marx and F. Engels, "Soch.", Vol 4, p 98.
10. K. Marks and F. Engels, "Soch.", Vol 12, p 717.
11. L. M. Volodarskiy, "Glavnaya zadacha" [The Main Task], Moscow Mysl, 1976 p 98.
12. K. Marx and F. Engels, "Soch.", Vol 24, p 90.
13. K. Marx and F. Engels, "Soch.", Vol 46, Part I, p 391.
14. N. A. Voznesenskiy, "Izbrannyye proizvedeniya" [Selected Works], Moscow, Politizdat, 1979, p 506.
15. V. S. Nemchinov, "Izbrannyye proizvedeniya", Moscow, Nauka, 1968, p 306.

16. S. G. Strumilin, "Izbrannyye proizvedeniya", Vol 4, Moscow, Nauka 1964, pp 251-268.
17. For the author's proposal to calculate outlays for the reproduction of labor power, surplus product, see: G. M. Sorokin, "Problemy vosproizvodstva i planirovaniya sotsialisticheskoy ekonomiki" [Problems in the Reproduction and Planning of the Socialist Economy], Moscow, Nauka, 1976, pp 48-80. and G. M. Sorokin, "Ocherki politicheskoy ekonomii sotsializma" [Outline of the Political Economy of Socialism], Moscow, Nauka, 1984 pp 61-74. The differences in surplus product norms for primary and final distribution are determined from data in the 1972 intersectoral balance. A general idea about outlays for labor power reproduction can be obtained by adding up expenditures for the maintenance of sectors "in the second type of production", material consumption of institutions making up the "second type" and the value of means of consumption obtained by workers in the material production sphere.
18. "All members of society not directly participating in reproduction, ie. not working in the material production sphere or not working at all, can obtain their share of the annual commercial product, (objects of their own consumption) only from the hands of those classes which the product first reaches: from the hands of production workers, industrial capitalists and land owners. In as much as their incomes originate in wages (production workers), profits or ground rents they are therefore incomes produced in relation to these primary incomes." K. Marx and F. Engels, "Soch.", Vol 24, p 418.

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## GENERAL

### ECOLOGY, RESOURCE UTILIZATION QUESTIONS WEIGHED

#### Environmental Damage Cost-Accounting

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 6, Jun 85 pp 50-56

[Article by L. Melnik, candidate of economic sciences (Sumy): "Evaluation of the Ecological Component of Socially Necessary Expenditures"]

[Text] The validity of managerial decisions depends greatly upon the degree of consideration given social outlays for production, including the social and economic effects of actions on the natural environment. "The times insistently require," noted V. V. Shcherbitskiy, "that the work of enterprises and associations be evaluated not only by economic but also by social and ecological indicators."<sup>1</sup> Until recently, a large portion of the outlays connected with the negative effects of production processes on environmental elements were not considered. Now, when deciding some economic tasks, a methodics which was developed by a joint commission of USSR GKNT [State Committee on Science and Technology] and approved by USSR Gosplan and USSR Gosstroy and which permits the amount of economic harm from polluting the environment to be determined is being used.

Today a determination of the damage is now given, and the methodics bases and informational foundation for evaluating it quantitatively have been adequately developed. Branch-of-the-economy methods for evaluating the economic damage from polluting the atmosphere and water sources with various harmful ingredients have been established, and a number of practical problems of using indicators of the damage have also been solved.

Meanwhile, economic practice indicates that this is not enough. Still not considered are the economic consequences of the preceding production stages, that is, production of the material and energy resources used: the electricity used for charging electric vehicles, the lead and alkali for the storage battery activity, and the nonferrous metals and cement for solar batteries. Losses from the withdrawal of land for other use must also be considered.

Thus it is obvious that, together with the amount of economic damage from current pollution of a medium, the indicators of damage that the negative

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<sup>1</sup>Shcherbitskiy, V. V. Nauchno-tekhnicheskii progress--zabota partiinaya [Scientific and Technical Progress Is a Party Concern]. Kiev, Politizdat, Ukrainy, 1983, p 252.



effect that past processes for producing the resources used have had on nature must be considered. Such indicators of damage, applied per unit of a resource, should, from our point of view, be called the resource's damage intensiveness. The indicators of economic damage from current environmental pollution processes envision consideration of the regional peculiarities of a specific production facility (the technical parameters of production, including the source of pollution; economic characteristics; and the facilities of the national economy that suffer the effects of the pollution). As was noted above, definite experience has now been gained in calculating and using such indicators. The given evaluations, in much the same way as adjusted expenditures, and together with them, can be used in solving the following management problems: selection of a variant for developing production at an enterprise; optimal nature-conservation measures, given the conditions of the enterprise and region and the siting of industrial enterprises; choice of route for optimizing capital investment, considering the conditions of the industrial regions; and choice of methods for improving the layout of cities and transport arterials.

Use of the damage-intensive indicators plays a somewhat different role. It is desirable to use these evaluations (by analogy with prices) in solving problems when the pollution source and the region where the production occurs are not specified. As a rule, these problems are on the national-economy level: the development countrywide of a specific technology, evaluation of the effectiveness of savings of material and energy resources, and so on.

Both the evaluation methods and the use of damage-intensiveness indicators and of indicators of damage from current environmental pollution differ. The average amount of damage caused by producing a unit of output is the weighted mean value (by volume of output produced under similar conditions) of the economic damage caused by environmental pollution at all stages of production, including geological exploration and raw-materials processing. Thus, the existing methods for determining damage from current environmental pollution processes should be the initial base for determining damage-intensiveness indicators. At the same time, shaping the approaches to determining damage-intensiveness indicators requires a deeper study of the concept of "economic damage" itself.

The amount of worktime or the amount of labor should emerge as the sole measure for evaluating economic damage, from our point of view, since, as K. Marx has indicated, "...worktime...is the live quantitative entity of labor and, at the same time, an immanent gage of this entity."<sup>2</sup> Pollution of the environment can lead to a direct loss of worktime (absence from work of some workers because of illness) and to losses of some output of agriculture and forestry (reduction of the yield or productiveness of crops) and of industry (corrosion of fixed assets). The damage can even be indirect in nature: society is forced to divert some of the work force to eliminating or preventing the consequences of pollution.

These losses of concrete labor can be measured quantitatively by losses of abstract labor. In so doing, the most important feature of economic damage should be considered. The economic harm engendered by environmental pollution in producing some output appears in the form of ecological outlays (additional expenditures and losses) in producing other output (services and

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<sup>2</sup>K. Marx and F. Engels, Soch. [Works], Vol 13, p 16.

work performed), as a rule, in subunits of the economy that are geographically contiguous to the polluting enterprise. Partially, it is true, the production facility that pollutes the environment also suffers directly in this regard.

The following conclusion should be drawn from this: the place of economic damage can be determined not in regard to one certain product but to the whole aggregate of the region's resources and types of work or services during the performance (or execution) of which the effect of environmental pollution that is formed during the production of the given product can be disseminated. K. Marx noted that "...the law of value in actuality is manifested not in regard to separate commodities or output but each time in regard to the whole aggregate of the output of separate isolated output, owing to the division of labor of the social spheres of production..."<sup>3</sup>

During environmental pollution, changes in the formation of value can occur, which can be classified in three groups.

First, losses occur of a portion of the value produced, caused by the following processes: losses (reduction in quality) of fixed and working capital of industry, transport and municipal services; losses of valuable raw material from industrial discharges; and losses (reduction in quality) of the output of agricultural, forestry, fishing and hunting activities (shriveling of vegetation, epizootic disease of animals, destruction of fish, and so on). The indicated processes lead to a loss of value which is included in the value created by live labor (for a given subunit) and the cost of the means of production consumed, that is, the value created by social labor (amortization of equipment, expenditures for mineral fertilizers, chemicals, feed, and so on). This can be expressed by the negative component  $-(\Delta C_T + \Delta V_T + \Delta m_T)$ . The ratio of the various components depends upon the specific organic structure of production.

Second, nonproduction of national income (net output) occurs as a result of the following factors: degradation of the health of workers (or of members of their families) and their absence from work (because of their own illness or their caring for a sick family member); reduction in the efficiency of workers because of deterioration of their health without the formalization of temporary losses of efficiency (this factor is not properly reflected in damage-computation practice); reduction in labor productivity as a result of personnel turnover caused by environmental pollution; reduction in labor productivity through reduced yield and productiveness of farm or forest land and of livestock, fisheries and forestry activities; and economic losses as a result of breakdowns of equipment (for example, because of corrosion) and downtime as a result of additional repairs and servicing. The action of the enumerated factors leads to a potential loss of the value created by live labor and is expressed in the appearance of the negative component  $-(\Delta V_H + \Delta m_H)$ .

Third, additional expense must be borne to compensate (partially or fully) for the indicated losses by the national economy subunits that suffer the effects of disturbance of the environment; additional expenditures for the upkeep of housing and municipal services, transport and industry (the cost

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<sup>3</sup>K. Marx and F. Engels, *Soek.*, Vol 25, Part II, p 185.

of raw and other materials, equipment and workers' wages); additional expenditures for isolating the effects of pollution (the aftertreatment of water, the installation of air conditioners, and the application of protective coatings); additional expenditures for work in agriculture and forestry (the cost of mineral fertilizers, chemicals, additional equipment and workers' wages); and additional expenditures on medical services and public-health measures (the cost of medicines, equipment and medical workers' wages). This portion of the expenditures increases the first two components of social outlays for production, respectively, for  $\Delta C_K$  (cost of the means of production consumed in order to compensate for the negative consequences of pollution) and  $\Delta V_K$  (expenditures of live labor for the indicated compensational work). An increase in outlays through the components ( $\Delta C_K + \Delta V_K$ ) does not lead to an equivalent growth in the volume of the corresponding commodities, and, consequently, also of the consumer value. Moreover, since these operations are financed through a portion of the profit obtained, it should be reduced by the value  $\Delta m_K = \Delta C_K + \Delta V_K$ . Thus, as a result of environmental pollution, the cost of the aggregate output is reduced by the amount of the negative components. Consequently, the amount of economic damage (we shall call it outlays for pollution) can be expressed by the formula

$$Y = (\Delta C_T + \Delta V_T + \Delta m_T) + (\Delta V_H + \Delta m_H) + \Delta m_K.$$

As we see, three main components of economic damage are traced:

$$Y = Y_T + Y_H + Y_K.$$

where  $Y_T = \Delta C_T + \Delta V_T + \Delta m_T$  is that part of the aggregate output lost as a result of direct destruction from pollution effects;  $Y_H = \Delta V_H + \Delta m_H$  is the nonproductive part of the national income (net output) as a result of pollution;  $Y_K = \Delta m_K = \Delta C_K + \Delta V_K$  is the compensational component of the damage, that is, the additional expenditures by subunits of the national economy in order to compensate for the effects of pollution. According to our consolidated evaluation, the share of the three indicated components averages 10, 40 and 50 percent of the total amount of economic damage.<sup>4</sup> Needless to say, in each specific case (the region, the enterprise, the polluting ingredient or the polluted medium) the structure of the damage can vary considerably.

Thus, the economic harm affects all three elements, for which the value of the aggregate output suffers. The first component is being changed: a portion of the raw and other materials or the implements of labor is lost. The second component: a portion of the live labor is absorbed, let us say, in the illness time of workers or members of their families whom they attend; and a portion of the labor is lost in compensation for possible losses. And finally, damage arises in the third component, reducing the profit of socialist enterprises and of all society.

The full national economic outlays from producing a certain type of output (or performing work) can be expressed in consolidated form by the following formula:

$$H = H_n + \sum_{i=1}^n H_i.$$

where  $H_n$  are the productive outlays for producing output at the given enterprise; and

<sup>4</sup>In the example of the economic damage from air pollution.

$\sum_{i=1}^n y_{ii}$ , is the total of the ecological outlays that arise in the i-th subunit

of the national economy<sup>5</sup> from environmental pollution by harmful discharges as a result of producing the given output, that is, the economic damage.

From our point of view, it is desirable to use the following indicators as a quantitative measure of the ecological component of social outlays for production: the damage that occurs per unit of discharge of the harmful ingredient into the atmosphere, water or soil; the harm caused by environmental pollution during the production of a unit of material resources, including fuel resources; the harm caused by environmental pollution during the generation of a unit of energy resources; the damage caused by environmental pollution during the execution of a unit of work, for example, in transporting 1 ton of freight a distance of 1 km; and the damage caused by environmental pollution during the creation of a unit of fixed capital. All the enumerated indicators are, in the final analysis, mutually related.

The total amount of economic damage from producing a unit of material or energy resources (or in doing a unit of work), that is, its damage intensiveness, can be expressed schematically as follows:

$$y_p = y_s + y_{np} + y_\phi,$$

where  $y_p$  is the amount of economic damage inflicted by environmental pollution at the production stages of the given resources (calculated per unit of the resources);  $y_{np}$  is the amount of damage inflicted on the environment by pollution during the production of other resources that are used in creating a unit of the given resources (let us provisionally call the "other resources" primary and the created resource the final one); and  $y_\phi$  is the amount of damage inflicted on the environment by pollution during the creation of fixed capital, per unit of resource produced.

Each of these components is complex in nature and can be determined as follows:

$$y_s = \sum_{i=1}^n \sum_{j=1}^m \frac{y_{ij}}{K_p},$$

where  $y_{ij}$  is the annual damage inflicted at the i-th stage of production of the final resource by discharges of the j-th ingredient into the environment (rubles/year); and  $K_p$  is the amount of the final resource for performing the work (tons/year) per year.

$$y_{np} = \sum_{z=1}^l (y_{Mz} + y_{Tz} \cdot t_z) \cdot P_{Mz} + y_\phi \cdot P_\phi,$$

where  $y_{Mz}$  is the damage intensiveness of the z-th primary material resource, including fuel resources (rubles per ton);  $y_{Tz}$  is the damage intensiveness

<sup>5</sup>According to our evaluation, from 10 to 40 percent of the damage can also be realized indirectly at the polluting enterprises.



of hauling a unit of the z-th primary material resource (rubles/ton/km);  $t_z$  is the average distance of delivery of the z-th resource (km);  $P_{Mz}$  is the resource intensiveness of the final resource for the z-th primary material resource (ton/ton);  $y_p$  is the damage intensiveness per unit of electricity (rubles/kWh);  $P_p$  is the power intensiveness of the final resource (kWh/ton) (in this case only the requirement for electricity is considered, but in the long term it will be possible to consider also the requirement for heat energy (kilocalories/ton)). Collecting the corresponding values will enable the damage intensiveness of transporting a unit of electricity to be evaluated with time:

$$y\Phi = y / \frac{\Phi}{K_p \cdot T\Phi}.$$

where  $y_f$  is the damage intensiveness of creating a unit of fixed capital (rubles/ruble of o.f. [fixed capital]);  $\Phi$  is the average annual cost of o.f.);  $K_p$  is the quantity of the final resource produced (tons/year);  $T\Phi$  is the average service life of the fixed capital (years) (since damage intensiveness per unit of fixed capital is formed by damages during the production stages that are included in the fixed capital for materials,  $T\Phi$  considers more precisely how the average period, during which full renewal of materials for fixed capital occurs, the amount of the inverse norm for amortization can be adopted for rough calculations); and the value  $\frac{\Phi}{K_p}$  is an expression of the capital intensiveness of a natural unit of output (rubles of o.f./tons/year).

In its turn:

$$y_f = \sum_{q=1}^r y_{pq} \cdot \frac{K_{pq}}{\Phi}.$$

where  $y_{pq}$  is the damage intensiveness of the q-th resource that is included in the fixed capital, including the damage intensiveness of transporting it;  $K_{pq}$  is the amount of the q-th resource used in creating fixed capital; and  $r$  is the amount of the primary resources used in creating fixed capital.

An analysis of the proposed scheme for calculation indicates that it is to some extent of a closed nature. In particular, in order to evaluate the damage intensiveness of the resource that is final under the scheme, the damage intensiveness of other resources is necessary, for the determination of which, in its turn, the evaluation to be determined can be required. Therefore, we propose to use for the calculations a three-stage method of consecutive approximations:

- I.  $y_p = y_s$ ,
- II.  $y_p' = y_s + y_{mp}(y_s) + y\Phi(y_p)$ ,
- III.  $y_p'' = y_s + y_{mp}(y_p') + y\Phi(y_p')$ .

In considering the consolidated nature of evaluating economic damage, the precision of the results of the third iteration obviously will be adequate for using them in economic calculations.

At present, research experience and the information base accumulated are sufficient only for making the first and, partially, the second stage of the calculations. After the creation of a data bank on damage intensiveness (of the first stage) of the basic material and energy resources (fulfillment of the operations), calculations can be accomplished completely for the second stage and started for the third stage. Aside from the weighted mean indicators for damage intensiveness of the resources, the values of damage intensiveness for the various methods of obtaining the resource should be evaluated for intrabranh calculations. Table 1 shows the results of calculations for determining the damage intensiveness of various resources (or the performance of work) that are associated only with atmospheric pollution. Damage intensiveness of the technological stages of obtaining material resources includes the values of specific damages at preceding stages of obtaining the resource.

Table 1

Damage Intensiveness of Producing Resources (or Performing Operations)  
Associated with Atmospheric Pollution

Type of indicator	Value
Material resources, ruble/ton	coke..... 0.6-1
	pig iron..... 3-4
	steel..... 4-17
	cement..... 1-3
	chemical fibers..... 20-25
Power resources, kopecks/kWh	electricity at thermal
	electric-power stations... 0.2-0.3
Fixed capital (thousands of rubles/ millions of rubles of fixed capital	fixed capital of thermal
	power engineering..... 15-20
	fixed capital for ferrous metallurgy..... 30-50
Hauling freight by transport, rubles/thousands of ton-km	motor-vehicle transport.... 1-2
	rail transport..... 0.03-0.04

In connection with the constant change of technology, the indicated evaluations of damage intensiveness of a resource should be reviewed periodically, the same as wholesale prices. The review period for ecological evaluations of a specific resource should correspond to the average period of change in technologies in the given branch or related branches of the economy.

Evaluation of the ecological component of socially necessary expenditures for separate types of output opens up new prospects for using economics methods to plan and manage natural-resources utilization and to improve the economic mechanism.

Two basic trends in considering the proposed evaluations can be singled out:

--improvement of planning (choice of variants in siting production facilities and developing technologies and choice of variants in the use of constructional materials); and

--improvement of commodity and monetary relationships (improvement of price setting, establishment of payment for natural resources and payment for polluting the environment; and improvement of cost-accounting relationships).

It goes without saying that the main trend in considering indicators of damage intensiveness should be an improvement in planning calculations. Here are just some of the possibilities in this area.

**A Choice of Alternative Variants for Developing Technologies.** The criterion for choosing is a minimum of national-economy outlays for the creation and functioning of the technologies. In so doing, expenditures for ecological outlays throughout the whole production chain should be considered, along with the production expenditures proper. Preference should be given to that technology for which total ecologico-economic outlays prove to be minimal. For example, in evaluating the effectiveness of converting to hydrogen fuel for internal combustion engines, consideration should be given, aside from expenditures of a technical nature, to the economic damage associated with the operation of gasoline engines, to damage during recovery and refining of the fuel, to damage inflicted by motor-vehicle transport, and so on. On the other hand, the economic damage caused by the generation of electricity necessary for producing the hydrogen should be considered; and similarly, when evaluating the promise of electric cars, the harm connected with production of the battery installation and other materials should be added to the damage of an electric-power engineering nature. This undoubtedly is a very simplified scheme of calculations, which considers only the most basic types of outlays. It should be noted that in converting to internal combustion engines based on hydrogen fuel or in replacing motor vehicles with electric transport, the basic value of the benefit should be expected through a redistribution of economic damage. This must be understood as follows: damage from choice of automotive transport as a result of such replacement can be expected, but, in its turn, the appearance of damage connected with producing the large amounts of electricity that will go to obtaining hydrogen fuel and the electricity consumed by electric transport must be expected. In this case, thanks to the higher effectiveness of stationary sources of energy, the possibility of using effective methods of purification (change of the factor of influence), placing electric-power stations outside densely populated regions (change of the factors of perception), the new transport means can be proved to be ecologically cleaner, even with the existing methods for obtaining electricity.

**Choice of Output Produced.** For example, a comparison of two types of mineral fertilizers A and B shows that, although the first is cheaper to produce (given comparable final results), the second proves to be more effective from the national-economic point of view, if, aside from the production expenditures, consideration is also given to the amount of economic harm at the production stages--extracting the raw material, transporting the raw material, obtaining the fertilizer, transporting and storing the fertilizer, and using the fertilizer.

**Evaluation of the Effectiveness of Using Waste Products and Saving Resources.** It can be boldly asserted that a lack of consideration of damage intensiveness indicators slows the introduction of most industrial processes for using wastes and the replacement of primary raw materials by secondary recycled resources. In the general form, the necessary economic prerequisite to converting to utilization of secondary resources can be expressed as follows:

$$3_{\text{иВ}} + 3_{\text{пВ}} < 3_{\text{дп}} + 3_{\text{пп}} + y,$$

where  $3_{\text{иВ}}$  are the expenditures for extracting secondary raw material from wastes;  $3_{\text{пВ}}$  are the expenditures for processing secondary raw material;  $3_{\text{дп}}$  are the expenditures for geological exploration and the extraction of the primary raw material;  $3_{\text{пп}}$  are the expenditures for processing the primary raw materials; and  $y$  is the damage intensiveness of producing output from primary raw materials. All forms of expenditures are given in estimates per unit of final output. The economic harm while obtaining output from the secondary raw materials is, as a rule, minimal and it is outweighed by the damage prevented by eliminating waste. In considering the amounts of economic damage, the production from secondary raw materials could be completely concurrent with primary production. Along with the saving of natural resources, this production is a process of almost absolutely pure acquisition of a resource, which prevents economic damage during the stages of primary production of the resource.

Jointly with Professor V. N. Leksin, based upon data for 38 ferrous and nonferrous metallurgy facilities, we made a consolidated evaluation of the economic damage from industrial pollution of all types for the stages of production and consumption of metal output<sup>6</sup> (in percents, with a total of 100 percent): geological exploration (disturbance of rock bodies, pollution of the landscape, and so on) 2 percent; ore mining (disturbance of rock bodies, withdrawal of arable land and pollution of the ground, water and air basins) 20 percent; metallurgical treatment of raw materials (the same) 50 percent; beneficiation of ores (pollution of the ground, water and air basins) 20 percent; treatment of the metals and acquisition of the final metal product (pollution of the runoff and of the land) 5 percent; the use of metal output in branches of the national economy (the same) 1 percent; and the use of metals in the consumption sphere (the same) 2 percent. The share of economic outlays (in relation to the amount of production expenditures) for some ferrous and nonferrous metals (see table 2) was evaluated on the basis of this consolidated structure of economic damage and of precise calculations of the damage from polluting the atmosphere during the beneficiation and processing of the raw materials. The amount of damage connected with obtaining the electricity used was determined in accordance with the specific electricity-consumption indicator.<sup>7</sup> The data of the table show that, for some metals, the ecological outlays are commensurate with the production expenditures, which can prove to be a decisive factor in favor of using secondary resources.

**Choice of Alternative Materials.** The essence of this approach is that, when choosing materials, not only the operating expenditures for manufacturing them but also the ecological outlays, that is, the damage intensiveness of obtaining the given resources, should be considered. Other conditions being equal, this approach permits materials that are ecologically purer to be selected, reducing the demand for less pure materials. Thus, ecological

<sup>6</sup>Where cost evaluations are absent, the physical amounts of discharges of wastes and their comparative harmfulness, the area devoted to tailings, and so on, are taken into consideration.

<sup>7</sup>A. M. Polyak. *Povysheniye effektivnosti ispolzovaniya materialnykh resursov* [Increase in Effectiveness of Material Resources Utilization]. Moscow, Ekonomika, 1978, p 57.



Table 2

Share of Economic Damage from Environmental Pollution at the Stages of  
Production of Metals (in Percent of the Amount of Production  
Expenditures per Ton of Output)

Metal	From atmospheric pollution during concentration and metallurgical processing	From other types of disturbances of the natural environment for production stages	From environmental pollution at the stages of obtaining the electricity consumed	Total
Copper.....	18-24	12-16	1-6	31-46
Nickel.....	24-30	16-20	2-6	42-56
Aluminum.....	3-5	2-3	4-10	9-18
Lead.....	7-10	5-7	1-2	13-19
Zinc.....	3-6	2-4	1-2	6-12
Steel.....	3-7	2-4	-	5-11

problems are also solved indirectly. Under this approach, we would scarcely see the aluminum or stainless steel chairs which have come to replace wooden ones.

Definite steps are also being taken to include damage indicators in the system of commodity-monetary relationships. In particular, many scientists propose that payment be made for polluting. In some regions (for example, in the Estonian SSR), it is planned to create a regional fund for nature-conservation activity. Enterprises will make deductions into this fund proportional to the economic damage they cause the environment. At some enterprises ecological indicators are included in the system of factory cost accounting, and material incentives for engineers, technicians and blue-collar workers depend directly or indirectly upon the indicators for the economic consequences that their production inflicts on the national economy by environmental pollution. For example, Sumy's Khimprom PO [Production Association] is reducing the bonus fund for workers of a department, under special norms, for each case of exceeding the norms permitted for the discharge of harmful substances into the atmosphere.

There is less preparation today in accounting for damage indicators when setting prices. Thus the basis for establishing prices are now, on the one hand, expenditures for producing the output (the lower limit) and, on the other, the benefit to the customer by using the given output (the upper limit of prices). Including the indicator of economic damage in the price-setting system will enable both production outlays and the benefit of the consumption to be reflected more completely, that is, an increase or decrease in the damage at the stages of producing and consuming the output. This is shown in the example of choosing alternative materials. However, an important feature of economic damage should be considered: its amount is realized not by the direct producers or consumers of the output, but by neighboring subunits of the national economy. Nowadays, change in the amount of ecological outlays does not touch upon the interests of either the manufacturer or the customer. In this case, inclusion of the amount of ecological damage in the price would provoke definite opposition and could lead to results that are difficult to foresee. For example, increasing the price of materials produced by the amount of damage would actually reduce the motivation of customers

to use said resource. However, simultaneously, there would appear a motivation on the part of the makers of the output to produce output that is more costly, given the same expenditures but ecologically more harmful materials. In this situation, the development of a complicated mechanism for withdrawing a portion of the additional profit obtained for ecologically unimproved output would be required for manufacture of the output, and, on the contrary, compensation for the additional expenditures for ecologically cleaner output would be required. The development and functioning of such a mechanism is an extremely complicated and undesirable measure.

Consideration of the economic damage in prices is more natural where the system for economic calculations is changed (the introduction of a payment for pollution, a tightening up of standards for environmental quality, and use of the amount of damage prevented as a cost-accounting capitalization indicator). Such an economic situation will help to balance out the advantages for the customer and the producer of ecologically clean output. For example, the production of materials that are ecologically less pure during manufacture will prove to be unsuitable for the customers (since they will be more expensive), and for the manufacturer (since they will increase outlays for the latter by the amount of the payment for pollution). These measures must be accompanied by an overall improvement in the economic mechanism, which would reduce the incentive for an enterprise to produce output that is more expensive and materials-intensive. It is just such a reorientation that is being produced right now in branches of the economy that are operating under the economic experiment.

Thus, the proposed economic measures for solving ecological problems can yield a benefit if it is conducted in interrelationship with and is reinforced by the necessary changes in the economic mechanism. In this case, ecologically improved production that is suitable from national-economy standards will be suitable for each individual enterprise.

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#### Natural Resources Utilization Policies

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 6, Jun 85 pp 56-58

[Article by S. Grebenyuk, deputy chairman of the Oblispolkom [Oblast Executive Committee] and chairman of the Planning Commission, and I. Dalichuk, economist of the Planning Commission (Cherkassy): "Problems of Improving the Planning and Management of Natural-Resources Utilization in the Region"]

[Text] In implementing the decisions of the 26th CPSU Congress, the 26th Communist Party of the Ukraine Congress and subsequent CPSU Central Committee Plenums, Cherkassy Oblast, under the guidance of party and soviet organs of enterprises and organizations, nature-conservation organs and society are doing work aimed at preserving and making rational use of natural resources and at improving the condition of the environment.

About 20 million rubles of state capital investment have been spent for these purposes during the current five-year plan period. This has made it possible to reduce the discharge of inadequately purified effluent into water bodies

and to reduce somewhat the discharge of harmful substances into the atmosphere by various enterprises. Systems for a recycled water supply, which enable three-fourths of the fresh water to be saved, are being introduced widely in the oblast. The area of recultivated land has grown, and more than half of it has been drawn into the agricultural turnover.

An oblast interagency scientific and technical council on integrated problems of protecting the environment and making rational use of natural resources is in operation for the purpose of improving coordination of the work of the nature-conservation councils that were created under rayon and city Soviets of People's Deputies, of improving organization of the monitoring of integrated solution of the most important problems of nature conservation and of making rational use of the oblast's natural resources. Standing commissions of deputies on conserving nature and making rational use of natural resources are operating under the ispolkoms of local soviets. The reports of enterprise and organization supervisors are being monitored, for the purpose of monitoring execution of the party's and government's decrees and observance of the Law on Nature Conservation.

Nevertheless, the ecological situation and the status of nature conservation work in the oblast still do not meet modern requirements. During the current five-year plan the goskapvlozheniya [state capital investment] on nature conservation have not been assimilated by enterprises and organizations of the USSR Ministry for Mineral Fertilizer Production, the UkSSR Ministry for Procurement, and UkSSR Glavplodvinprom [Main Administration for the Management of Horticulture, Viticulture and Winemaking]. The state plan for reducing harmful discharges into the atmosphere is not being met.

Raising the effectiveness of nature conservation measures depends greatly upon improvement of planning work. This is especially important right now, when the oblast's republics are developing plans for economic and social development for the 12th Five-Year Plan period.

The development of the plan's chapter on "Nature Conservation and Rational Use of Natural Resources" requires in the greatest degree an integrated approach and detailed coordination of the regional interests of branches of the economy. The basic purpose in developing it is to protect and strengthen the oblast's natural-resources potential, provide for its rational and integrated use, and reduce the negative effects of branches of the national economy on the environment. The primarily regional nature of change in status of the natural environment as a result of intense use of natural resources and pollution of the air, water bodies and soils by production and household waste requires that measures be developed to protect nature in the regional and branch aspects of the plan. However, as experience indicates, the system for planning nature conservation and the rational use of natural resources is not flexible enough, and it provides primarily for branch interests.

At present the plan's chapter on "Nature Conservation and the Rational Use of Natural Resources" reflects planning tasks at the oblast level which are worked out mainly in the form of consolidated branch indicators. These, although they also describe the nature-management and nature-conservation activity of the ministries and agencies, do not give an idea of how well this activity is correlated with the region's resources potential and what changes are being made in the natural environment. Therefore, the regional



indicators of natural-resources utilization do not always correspond to the specific ecologico-economic situation that exists in the region at the time the national-economy plan is being formulated. Moreover, the plan for natural-resources utilization at the oblast and rayon levels is not a full digest of the recommendations and the areas of nature-conservation activity. For example, indicators of the reproduction of fisheries reserves, the protection and reproduction of wild animals and birds, as well as the organization of nature-conservation regions and the use of production wastes, are lacking. They do not adequately consider modern trends in developing some branches of the economy and the region's requirements for nature-conservation measures. This is a result of the fact that, in planning measures for protecting nature, enterprises of Union, Union-Republic and republic subordination call for only a minimum of nature-conservation measures in the draft plans. Such an approach to the planning of natural-resource conservation does not allow the specifics of the region and of the oblast's and rayon's production structures to be considered; this does not always lead to a maximum of benefit from nature-conservation work.

Even the existing system of presentation and review of draft plans is not perfected enough. Plans for natural-resources utilization come from the enterprises to the obplan [oblast planning commission], as a rule, much later than their dispatch to the ministry. It is natural that the oblast ispolkom's recommendations, when they are examined in the ministries, do not coincide as to dates, and so are not fully considered. And the procedure for further review of the draft plan does not correspond to today's requirements. As experience indicates, ministries and agencies do not give their conclusions in regard to the draft plan and the oblast planning commission does not allow for them.

The CPSU Central Committee, USSR Supreme Soviet Presidium and USSR Council of Ministers Decree, "On Further Raising the Role of the Soviets of People's Deputies in Economic Construction," defines precisely the sequence of developing consolidated regional plans. However, the ministries and agencies still have not got from their subordinate enterprises full responsibility for planning and the execution of nature-conservation measures, as well as their concurrence by the ispolkoms of local soviets. In this connection, the republic ministry's and agency's reviews of the oblast planning commission's proposals for executing nature-conservation measures, which should stipulate the appropriate forms, deadlines and the results of the reviews and conclusions on the draft plans which have been devoted to these questions, requires detailed development.

It should also be noted that the process of rational natural-resources utilization is complicated by a number of existing deficiencies in the system for managing the sphere of natural-resources utilization at the oblast level. The system is basically an agency and branch system, and it is not oriented sufficiently to achievement of final goals; it does not fully conform to the integrated and interbranch nature of the task of managing the environment.

An analysis of the environmental control organ functions that are accomplished under the current system indicated that oblast planning commissions should, jointly with special nature-conservation organs, work more actively with enterprises and organizations with a view to increasing their



responsibility for formulating plans for natural-resources utilization and make wider use of the rights granted them to check on the norms and regulations for making rational use of natural resources.

In considering that the problems of planning and managing the use of natural resources in the oblast are of a clearly expressed multibranch and multipurpose nature, they can be solved successfully on the basis of a specific-purpose program approach, which assumes mutually related efforts by both local control and planning organs and their economic units that are functioning in the region's territory. As is known, the 1983 CPSU Central Committee and USSR Council of Ministers Decree, "Measures for Speeding Up Scientific and Technical Progress in the National Economy," recognized that the use of specific-purpose planning in the national economy must be expanded. Beginning with the 12th Five-Year Plan period, All-Union, republic and interrepublic scientific and technical programs, as well as programs for developing individual regions and regional production complexes, will be developed.<sup>1</sup> In this connection, in our view, the time has come when a specific-purpose program must be developed for managing the environment in each oblast of the republic. Finally, each region has had its own ecological situation and characteristic peculiarities of production-economics activity.

However, this program should reflect the following: analysis of the initial level, the final goals at the end of the forecast period and the routes to achieving these goals, and determination of all types of resources necessary for implementing the program, as well as the benefits achieved as a result of executing the program. Based upon this, an approximate structure of the process for developing the program for controlling environmental quality can be presented in the following form.

1. Posing of the problem and determination of the specific tasks for a long-term period, taking account of basic trends in the oblast's economic and social development.
2. Preparation of descriptive specifications and inventories of natural resources.
3. Description of the initial state of the oblast's ecologico-economic system.
4. A compilation of social, economic, demographic and ecological forecasts.
5. Validation of the long-term goals and tasks for nature conservation.
6. The development of an ecologico-economic concept for the oblast.
7. The compilation of variants of nature-conservation measures.
8. The development of norms and standards for the region's environmental quality.
9. Selection of a variant of the nature-conservation measures.

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<sup>1</sup>PRAVDA, 27 August 1983.

10. Calculation of the requirements for all types of resources necessary for implementing the program.
11. The development of guides for improving the planning, management and economic incentives for making use of natural resources.

Development of the given approach under the indicated scheme will allow a comprehensive approach to be taken to solving the problem of conserving nature in the region and to coordinating the interests of various enterprises and organizations--those who will execute the program. This will help to eliminate bureaucratic barriers in solving the problem, and in strengthening the functions of regional and branch planning of natural-resources utilization.

Thus, the significance of the problem of protecting nature and of making rational use of natural resources, which is increasing, requires, on the one hand, improvement of the methodics bases for national-economy planning for nature-conservation measures, and, on the other, the creation of an improved system of plan indicators and of classification of measures and mechanisms for correlating territorial and branch aspects, nationwide and region--both as to land and as to branch of the economy--of the plan for making use of natural resources. In so doing, improvement of nature-conservation work should be viewed in unison with the tasks of improving the economic mechanism as a whole.

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#### Natural Resources Utilization Infrastructure

Moscow EKONOMICHESKIYE NAUKI in Russian No 8, Aug 85 pp 72-78

[Article by V. Vesnin, candidate of economic sciences: "The Political-Economic Aspect of the Natural-Resources Utilization Infrastructure"; passages rendered in all capital letters printed in italics in source]

[Text] Soviet economic literature has paid increasingly great attention in recent years to questions of the infrastructure, whose role in providing for continuity of the reproductive processes in both society as a whole and in separate regions is rising rapidly. Nevertheless, many problems of the theory and practice of developing the infrastructure still have been poorly studied. Among these problems is the infrastructure for using natural resources, which provides the more general prerequisites for the interaction of society and nature.

The natural-resources utilization infrastructure is a category more concrete than the infrastructure at large, so, before undertaking a direct examination of it, attention probably must be paid to some general principles of the theory of infrastructure, the more so since there is still no unity of opinion about some of them on the part of our economists.

As is known, Karl Marx did not examine in his works specifically the problem of infrastructure, which is completely explicable for two reasons. First, the infrastructure as a socio-economic phenomenon had not yet matured in the

era of free competition, and second, there was no need for a special examination of that kind from the standpoint of K. Marx's solution of the basic task--a study of the essence of capital and the laws of its development. For all that, Karl Marx's works contain no few expressions that serve as a basis for modern political and economic development of questions of developing the infrastructure.

This concerns above all an understanding of the essence itself of the infrastructure. "In addition to those things by means of which labor acts on the subject of labor and which, therefore, in one way or another serve as guides of its activity," Karl Marx pointed out in "Capital," "in a wider sense all the material conditions generally necessary to let the process be completed relate to the means of the labor process. They cannot enter directly into it, but without them it is either entirely impossible or it can occur only in imperfect form."<sup>1</sup> As an example of this sort of means of labor, Karl Marx cites working buildings, canals, roads, and so on, which right now are clearly related to the infrastructure.

Unfortunately, the infrastructure still frequently is viewed only as a variety of the means of labor, of the material conditions that enable the production of concrete consumer values, and as a system of the common constantly operating conditions of social production, that is, as an element of the productive forces. But the infrastructure is above all an aggregate of production interrelationships, otherwise it would not have been the subject of the study of politico-economic theory. Therefore, B. N. Khomelyanskiy, who writes that "the infrastructure can be defined as a sphere of production relationships in which the labor of the workers, in the form of material and nonmaterial services, creates general conditions for the functioning of social production, exerts a direct influence on forming...the competence of the worker, and helps to improve production relationships"<sup>2</sup> was right. This kind of definition, which presents the infrastructure as a unity of material-substance content and of socio-economic form, and not just as an element of the productive forces, can be taken, it would seem, as the basis for making this category more specific.

Since the infrastructure creates the special conditions for the functioning of social reproduction as a whole, it simultaneously should give the prerequisites for reproduction: the output; the working forces; and production relationships. Such a functional role of the infrastructure in social reproduction is the basis for dividing it up into production, socio-domestic and institutional infrastructures. The latter is an arrangement of state and social institutions whose activity is aimed at improving socialist production relationships and their development in breadth and depth.

The material-substance content of the infrastructure is an aggregate of the most general prerequisites for social production. The latter can be both given by nature (for example, the earth, the climate, the terrain, and so on), and created in the process of man's productive activity, that is, it

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<sup>1</sup>Karl Marx and F. Engels. Soch. [Works], 2d Edition, Vol 23, p 191.

<sup>2</sup>B. N. Khomelyanskiy. Ekonomicheskii effekt sotsialnogo planirovaniya. Sotsialno-ekonomicheskaya infrastruktura v vosproizvodstvennom protsesse [The Economic Benefit of Social Planning. The Socio-Economic Infrastructure in the Reproduction Process]. Moscow, 1980, p 11.

can form a "second nature."<sup>3</sup> It would seem that the infrastructure can include only the conditions of the second group, which, in the words of Karl Marx, are "already produced productive forces."<sup>4</sup>

Infrastructure objects are formed within the framework of the investment process, similar in essence to the way production enterprises are formed. There is no little here that is common also in the natural-substance content and in the peculiarities of functioning; this complicates solution of the problem of scientifically substantiated criteria for an infrastructure.

Karl Marx, in examining fixed capital that is employed in branches that are at present clearly included in the infrastructural branches, pointed out that it actually never comes from the production process; it can serve as both productive and nonproductive consumption; it is required simultaneously by different types of capital as a prerequisite to the production and turnover that is common for all of them; it emerges not as being included in a special process of production but as a joining artery of a multitude of such processes of production of special types of capital; and it is sold not as a simple commodity, but directly as a means of production, the sale thereof coinciding with consumption in the overall social process of production.<sup>5</sup> Guided by Karl Marx's methodology and the concrete instructions cited, the following basic attributes of infrastructure can, in our view, be singled out:

First, THE NATURE OF THE OUTPUT: these are the productive and nonproductive services. The first provides for the preservation or shifting of consumer values that exist in the form of things; the latter are intended for man as the vehicle of the working force, for the comprehensive development of his personality, if we are referring to socialism. Unless they assume the form of substance, services cannot be accumulated or preserved for a lengthy period, for they are consumed simultaneously with their creation.

Second, THE NATURE OF CONSUMPTION OF THE INFRASTRUCTURE'S OUTPUT. It is collective, that is, the given object of the infrastructure simultaneously serves a number of consumers. It is true that even a productive unit can satisfy the requirements of many other contracting parties, but only CONSECUTIVELY, whereas the infrastructural object does so PARALLELLY.

Third, THE SYSTEMS NATURE OF FUNCTIONING AND DEVELOPMENT, which is occasioned directly by the fact that the infrastructure in essence links the individual processes of production and consumption into one. At first this systemicness is local, then regional and then national. We can now talk about the forming of international infrastructural formations, consequently also about the corresponding level of systemicness.

Guided by the notions set forth, it is possible, obviously, to move from the more abstract category "infrastructure" to a more concrete one--to the category of "the infrastructure of natural-resources utilization." The latter,

<sup>3</sup>See S. S. Nosova. *Proizvodstvennaya infrastruktura v sisteme gosudarstvenno-monopolisticheskogo kapitalizma* [The Production Infrastructure in the State-Monopoly Capitalist System]. Moscow, 1983, p 22.

<sup>4</sup>Karl Marx and F. Engels. *Soch.* 2d Edition, Vol 49, p 392.

<sup>5</sup>See Karl Marx and F. Engels. *Soch.* 2d Edition, Vol 46, Part II, pp 236-237.



in our view, can be defined as the SPHERE OF PRODUCTIVE RELATIONSHIPS, IN WHICH, BASED UPON THE FUNCTIONING OF THE AGGREGATE OF MATERIAL OBJECTS AND TOOLS WHICH THE BRANCHES HAVE CREATED IN THE INVESTMENT CYCLE, THE GENERAL PREREQUISITES FOR MAN'S INTERACTION WITH THE ENVIRONMENT AND ITS VARIOUS ELEMENTS ARE PROVIDED FOR, WITH A VIEW TO OBTAINING DEFINITE ECONOMIC OR SOCIAL BENEFIT. The material-substance content of the infrastructure for natural-resources utilization is, thus, an aggregate, or the system of material-substance conditions that were created during formation of the production processes that preceded it.

Therefore, the air, the earth in general, the climate, and so on, being elements of the environment, cannot be included in the infrastructure, even though they provide more general possibilities for the functioning of social production and nonproductive consumption. It must be noted that the INFRASTRUCTURE OF NATURAL-RESOURCES UTILIZATION PROVIDES FOR MAN'S INTERACTION WITH THOSE ENVIRONMENTAL ELEMENTS THAT STILL HAVE NOT BEEN SEPARATED FROM IT, have not experienced "primary processing." Thus, for example, a city water supply, being an infrastructural object, no longer has a relationship to the infrastructure of natural-resources utilization, since the water, in undergoing purification, filtration, chlorination and ozoning, and so on, that is, industrial treatment, is not a natural but a primary raw-materials resource whose ties with the natural environment have, in practice, been disrupted.

A number of economists note that the use of natural resources, the general prerequisite for the execution of which is provided by the functioning of the corresponding infrastructural objects, is, by its essence, a unity of natural-resources consumption and nature conservation. "...it would be methodologically incorrect," they write--I. Ya. Blekhtsin and V. A. Mineyev, in particular--"to demarcate with precision between the rational resources utilization itself and the nature-conservation area. They are constantly interlaced, and often it is extremely difficult to establish where one area ends and the other begins (and eventually, with the conversion to integrated systems, where they merge)."<sup>6</sup> But still they do exist relatively or completely independent of each other, and it is still legitimate to single out infrastructural objects connected with natural-resources consumption from objects connected with preserving the environment, or from the ecological infrastructure.

The natural-resources consumption infrastructure includes: arterial waterways and irrigation canals, sea canals, the water bodies of ports, navigational services--lighthouses, beacons, channel markers, and so on--and ships of the maritime and river fleets. The nature-conservation infrastructure, or the ecological infrastructure, includes shore-strengthening structures, forest-protection belts, installations for snow and water containments, reinforcement for the slopes of hills and gullies, noise-absorbing screens, purification structures in urban municipal-services systems, transport, preserves, game refuges, national parks, and shrubbery plantings in cities and settlements. At the same time, since a unity of the indicated processes takes place, it is also possible to single out mixed natural-resources utilization infrastructures which simultaneously perform both functions. Its facilities include water reservoirs, dams and beaches, as well as objects of

<sup>6</sup>I. Ya. Blekhtsin and V. A. Mineyev. *Proizvoditelnyy sily SSSR i okruzhayushchaya sreda* [The USSR's Productive Forces and the Environment]. Moscow, 1979, p 20.

an institutional natural-resources utilization infrastructure, which correspond to organs of control. Educational institutions which train specialists for the natural-resources utilization sphere should, in our view, be subordinated, taking their predominant profile into account, to the appropriate types of infrastructure. As for questions about the relationship of air and surface transport to the natural-resources utilization infrastructure, we refer here primarily to the use of the resources of space, and also to the elements of nature.

From what has been said, it can be concluded that, in a concrete analysis of the infrastructure of natural-resources utilization, each element of it should be viewed FIRST, from the point of view of the relationship to the processes proper of natural-resources utilization--natural-resources consumption and nature conservation; SECOND, in the spatial aspect: the local, regional and national or international infrastructure; and THIRD, in the reproductive aspect, that is, as productive, socio-domestic or institutional infrastructure. Only by taking all the indicated aspects in unity can some object of the natural-resources utilization infrastructure be studied with a sufficient degree of objectivity as a socio-economic phenomenon, which is the basis for determining its role and place in the social-reproduction system.

The infrastructure of natural-resources utilization in our country is now in the process of being formed. For some of its branches, it is close to completion. Here, in particular, it is possible to point to water transport, the nature itself of whose functioning requires a systems approach on a national scale. In the European part of the USSR the forming of internal waterways whose depths will permit the use of "marine-riverine" ships has practically been completed. Hundreds of ship canals and tens of reservoirs have been built. The internal waterways that have been equipped with special ship installations are 80,000 km long in the USSR.<sup>7</sup> Such objects of the ecological infrastructure as reservations and national parks have been formed in the unified nationwide system. In 1983 there were in the USSR 154 preserves, hunting reservations and national parks, totaling 14,345,000 hectares in area.<sup>8</sup> The systems nature of siting of reservations in the country permits conservation of typical representatives of fauna and flora for all natural and climatic zones to be provided for.

It should be noted that when forming the ecological infrastructure, the borders of nature complexes are of great importance as regional ecological systems. The consequences of man's intrusion into the environment are transmitted along the chain of system-forming ties throughout the whole nature complex, weakening with approach to its borders and with remoteness from the source of pollution. Territories where high environmental pollution levels still have not been eliminated are first priority for the forming of objects of the ecological infrastructure. Here the natural borders of the ecological system should be considered above all, as well as the bounds of possible negative changes in nature under the direct action of pollution.

<sup>7</sup>See A. B. Avakyan. *Vodnyye resursy SSSR, ikh ratsionalnoye ispolzovaniye i okhrana* [The USSR's Water Resources and Their Rational Use and Protection]. Moscow, 1979, p 20.

<sup>8</sup>See *Narodnoye khozyaystvo SSSR v 1983 godu* [The USSR's National Economy in 1983]. Moscow, 1984, p 378.

Questions of classifying the infrastructure of natural-resources utilization, to which we refer here, are far from being abstract or "purely academic" questions. The procedure for financing construction, the characteristics of reproduction, and determination of the amount and limits of the benefits depend upon the solution of these questions. Many complexities here result from the fact that the very same object can be included in different types of infrastructures. Thus, a water reservoir, as an element of the transport system in hauling the economy's goods, belongs to the production infrastructure; during the transport of passengers or the erection of sanatoria and rest homes on its shores, and so on, it belongs to the social sphere. At the same time, a reservoir is a most important prerequisite to hydroelectric-power station operation, its indispensable feature; in this regard, it is not entirely an infrastructural object, but an element of the system of production capital of a specific production enterprise, of its "internal infrastructure."

Resources aimed at forming a production infrastructure are, in their economic essence, advanced assets. The social labor accumulated in them should complete the cycle and be returned to the initial point, having enabled reproduction of the appropriate objects. The specifics of the cycle consist primarily in the periods of its accomplishment. Social labor materialized in objects of the social infrastructure is not advanced, but is expended and is gradually and irrevocably consumed. The reproduction of such objects is possible only on the basis of new expenditures of labor.

Thus, the organization of flows of social labor during socialist reproduction depends not least upon correct classification of infrastructure objects. The infrastructure of natural-resources consumption, with few exceptions, is not divided into a production and a social infrastructure. Moreover, a strict breakdown into infrastructure and noninfrastructure objects is lacking, as a result of which, for example, expenditures for creating and maintaining a reservoir are born by the hydropower complex, yet the benefit can be consumed by agriculture, water transport and other branches that are not by far connected with the generation of electricity.

The infrastructure of natural-resources consumption enables environmental elements to be used in man's economic activity, providing the prerequisites for reproducing the social output. At the same time, reproduction of the environment, that is, its preservation or restoration of its quality to a former level, based upon expenditures of social labor, is now of increasingly great importance.

Reproduction of the environment, the prerequisites for which are provided by the ecological infrastructure, differs radically from the reproduction of natural resources. The latter is done with a view to directly exploiting them, while reproduction of the environment calls for preservation of the former quality which, as certain economists note, is a social consumer value.<sup>9</sup> The quality of the natural environment is determined not just by the presence or absence of some one element of it. Here it is necessary to consider concrete combinations of mutually related elements. Thus, the draining of some swamps, it would seem, should help to improve the state of

<sup>9</sup>See Yu. Yu. Tupyt'sya. *Ekologo-ekonomicheskaya effektivnost prirodopolzovaniya* [The Ecologico-Economic Effectiveness of Natural-Resources Utilization]. Moscow, 1980, p 47.



the environment and raise its quality, while actually the effect can turn out to be the reverse, although on the surface the region's microclimate is made healthier, the land area suitable for agricultural use is increased, and so on.

The conclusion can be drawn, in our opinion, that only individual elements of the environment can be reproduced in expanded form. Such a conclusion is all the more justified because at present a criterion for this kind of reproduction is lacking. In regenerating some elements in expanded form, conditions that are unfavorable for the existence of other types may be created, and that means a worsening of the quality of the environment as a whole. Consequently, society, in setting realistic tasks for itself now, obviously should strive first of all for simple reproduction of environmental quality, for preserving it in its previous form.

The environment's quality is preserved and reproduced in two directions. The first is elimination of the consequences of damage inflicted on nature, the second is prevention of it. Accordingly, two types of ecological infrastructure can be singled out. The first type includes urban purification structures, stations for purifying port water of petroleum wastes, and so on. Sometimes these are specialized enterprises that produce a concrete output aside from their basic mission. Thus, for example, purification structures of the Ventspils port collect from its waters each year 30,000-35,000 tons of crude.<sup>10</sup> However, there is no production here in the full sense of the word, but losses are eliminated and damage prevented. Therefore, the economic type of these purification structures is not fixed production capital but independent infrastructure assets. The second type of ecological infrastructure includes production-enterprise purification structures that are not a component element of the basic production's technology. As a result of the use of such structures, discharges that are still permitted by the technology are captured and cleaned up, without inflicting any harm on the environment. Ecological technology of this kind (and, accordingly, the infrastructure) is by its nature transient, since it combines the features of two processes: the elimination of damage and, at the same time, the prevention of it, so that actual damage is not inflicted on the environment. A most important element of the ecological infrastructure being examined is development of closed production-cycle technology, which in principle produces no waste at all in the direct sense of the word. At the same time, it must be kept in mind that since enterprises with such a cycle send all their captured waste on for further processing, the removal of waste from the environment becomes for these enterprises a basic element that shapes their activity. Finally, production of this kind provides for preservation of the environment, but this is secondary for it and not a direct result. Therefore, it can be asserted that the technology of the closed production cycle is not by its nature infrastructure, it is one of the elements of the enterprise's production capital. The basic result of ecological infrastructure is, as has been noted, a defined quantitative state of the environment. It can be asserted that the ecological structure, by its functioning, extends material services, similar, for example, to repair activity. And both the individual consumers and industrial enterprises use them.

<sup>10</sup>See A. P. Banin. *Effektivnost okhrany okruzhayushchey sredy v kapitalnom stroitelstve* [The Effectiveness of Environmental Protection During Capital Construction]. Moscow, 1982, p 123.



Objects of the ecological infrastructure can both appear in the form of independent "enterprises" and be of an interbranch nature, and belong to one production enterprise, be an element of its production capital, and be assets for ecological purposes. However, in this case they will remain infrastructure capital, which, although it is being used by a given enterprise, performs interbranch functions. In connection with this posing of the question, it seems that payment for capital for ecological purposes which belongs to enterprises makes no economic sense.

As Yu. Yu. Tupytsya correctly noted, industrial pollution is the result of production under a given technology and organization. Therefore, pollution is the distinctive technological consumption of environmental elements, distinctive in the fact that these elements do not enter directly into the output, but are separated from it physically and economically.<sup>11</sup> Consequently, the product should be joined economically with the consequences of the pollution, by expenditures on either preventing or eliminating it. Such a joining is effected by payment for polluting the environment, inflicting damage on it in the process of production activity or personal consumption. This sort of payment, and also the penalties, which should be taken from the enterprise's economic incentive funds in order to intensify their effect, could form regional funds for reproduction of the environment (in essence, of the ecological infrastructure). Amortization deductions from funds for ecological purposes which function within industrial enterprises, fines imposed on individual citizens, and the sums obtained from realizing captured waste should go to these funds.

Payments for polluting the environment, if it is connected with characteristics of the technology, should be included in prime production costs, the same as amortization funds for ecological purposes, by a special proviso. In the contrary case, that is, when the pollution "has not been planned," they are of a one-time nature, they are similar to fines and should be absorbed through profit.

Objects of the ecological infrastructure perform production and social functions simultaneously, since a nonpolluted environment is a benefit that is used simultaneously by all who have a relationship with the given region--both enterprises and individual persons. Reduction of environmental pollution reduces the degree of physical wear of equipment, consequently it reduces costs for the full or partial reproduction of fixed capital. Knowing the consistency of the propagation of environmental pollution and its effect on equipment, one can calculate the production benefit of the ecological infrastructure, albeit for just the main parameters, within those bounds within which its effects are distributed. It is also possible to determine the approximate social benefit within these bounds. A summing up of both values obtained will give the minimal integral benefit of the ecological infrastructure, and thus also a basis for determining the effectiveness of its functioning.

An important independent question is study of the consistency of functioning and reproduction of the institutional and purely social infrastructure of natural-resources utilization: of preserves, refuges, national parks, beaches, educational institutions, scientific-research organizations, and so on. However, since they have here less "natural directivity" than other forms of

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<sup>11</sup>See Yu. Yu. Tupytsiya, *ibid*, p 82.

infrastructure and less specificity, it is justifiable to speak about component parts of the infrastructure of science and education and the recreational infrastructure.

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#### Special Resources Utilization Programs

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[Article by A. Naviyev, candidate of economic sciences: "A Specific-Purpose Program for Using the Republic's Natural Resources"; passages rendered in all capitals printed in boldface in source]

[Text] Papers of the 25th and 26th CPSU Congresses and the USSR Constitution have emphasized the growing importance of preserving the environment. Along with a multitude of measures for intensifying state monitoring over implementation of the corresponding measures, regional integrated schemes for protecting nature are to be developed. These schemes will help to improve planning of the country's economic and social development and will enable the level of scientific substantiation of all measures for preserving and improving the natural environment and for making rational use of natural resources within various branches and within various regions to be raised.

As is known, the problem of preserving the environment and making rational use of natural resources is comprehensive and involves a number of plans. Its component elements are: nature, society and production. Each of these elements can be viewed as fairly complicated systems. Thus, the concept of "nature" includes such systems elements as natural resources, the landscape, geobiocenoses, biomes, and so on. In their turn, the term natural resources combines land, water, forest, vegetative and livestock resources and useful minerals. These elements also can be studied as separate systems with their own complicated structures. For example, if the "land resources" are examined as a system, then it includes such structural elements as agricultural lands, lands for urban settlements, electric-power lines, industry and transport, forestry, water resources activities, and so on.

In the same way the concept "production" can be subdivided into the following structure: industry, construction, transport, agriculture, and so on.

All processes that occur in a regional ecologico-economic system are complicated and mutually related. All hierarchic subsystems--resource or territorial--function not in isolation from each other but in close interaction.

It becomes obvious, from what has been said, that constructing a single model that would consider all the objectively operating processes in society and in nature is not simple.

In the construction of such a system, a specific-purpose program approach in planning and controlling social development can be of invaluable assistance. In accordance with the methodology of such an approach, SPECIFIC-PURPOSE PROGRAMS FOR UTILIZING THE REPUBLIC'S NATURAL RESOURCES should be developed.

Such programs can be developed on the basis of a scheme for preserving the republic's nature, and they should be established within the long-range plan for the republic's and the country's social and economic development.

The goal of developing such a program is to define a system of nature-conservation measures and to form an economic mechanism for realizing it.

The criterion of socio-economic effectiveness of the republic's nature-conservation activity is a minimum of NATIONAL-ECONOMY EXPENDITURES FOR ACHIEVING STANDARD REQUIREMENTS FOR THE CONDITION OF THE NATURAL ENVIRONMENT AND FOR THE LEVEL OF SUPPORT OF THE NATIONAL ECONOMY WITH NATURAL RESOURCES.

Proceeding from national-economic plan tasks and from information about the status of the natural environment, programs for natural-resources utilization can be long-term and five-year and relate to the missions and coverage of such levels of the administrative and economic system as:

the national-economic, for example, in transferring a part of the flow of Siberian rivers to Kazakhstan and Central Asia;

regional and interrepublic, for example, in preserving and making rational use of the water resources of the Amudarya and Syrdarya;

republic (interoblast), for example, in protecting and making rational use of water resources, protecting soil from water and wind erosion, and protecting the atmosphere and water bodies from pollution;

oblast, for example, in protecting soils from erosion, in reforestation, and in protecting the atmosphere from industrial discharges of large enterprises and industrial clusters; and

local, for example, in protecting unique natural and historic landscapes of recreational or preserve lands, protecting from mud flows and protecting water and land resources and the atmosphere from industrial discharges in urban settlements. In cities such as Tashkent, local programs can be developed for each industrial zone.

In order to develop natural-resources utilization programs, there must be a full description of the potential natural-resources reserves and of the republic's environmental quality. The description should include an ECONOMIC (MONETARY) EVALUATION AND, BASED THEREON, PLANNING NORMS FOR NATURAL RESOURCES CONSUMPTION, AND PLANNING STANDARDS FOR ENVIRONMENTAL QUALITY SHOULD BE ESTABLISHED FOR THE REGION.

In developing planning standards, intraregional differences in the volume and quantity of expenditure of natural resources for achieving a definite purpose (for getting the maximum amount of harvest of agricultural crops, livestock output, industrial commodities, and so on) must be considered. For example, the consumption of irrigation water for obtaining one quintal of harvest for each agricultural crop is determined by the different soil and climatic conditions of the region. An analysis of reporting data from agricultural enterprises that specialize in vegetable, fruit, grape, and livestock areas, which are served by the Kalinin and Tashkent regional irrigation systems, showed that as the delivery of water for irrigating vegetable crops increased, their yield rose, but, with a later increase, the norms for irrigating were sharply reduced.

Therefore, when developing regional norms for water-resources consumption, the dependence of growth in yield on water consumption must be analyzed for all agricultural crops in all the republic's soil and climate zones and maximum norms for irrigating established with a view to reducing water losses.

When establishing PLANNING STANDARDS FOR ENVIRONMENTAL QUALITY for republics of the Central Asia region, including Uzbekistan, it is necessary to proceed from the local effect of polluting substances not only on the atmosphere, water bodies, soil, and so on, but also on the closed geochemical land arena, that is, on the land with the greatest risk of accumulating toxic, organic and other polluting substances that enter a given water-catchment basin. A clear example of a closed geochemical land arena are the nondraining areas of the Turanian lowland and a number of Uzbekistan's rivers, whose waters are used for irrigation in piedmont valleys and end up in dry deltas.

Self-purification of the atmosphere occurs most often by airstream entrainment of the substances that pollute it. The speed and direction of the winds, the frequency of calms, and temperature inversions play a major role in dissipating harmful aerosols and gases. While in the valleys of mountainous regions the probability of calms is extremely great (50-55 percent), in the flatland regions this figure is nearly halved. It is undesirable to build industrial enterprises identical in capacity and production of output in two places that are different in natural and climatic conditions.

Standards of quality of a region's environment should, thus, be developed for each step of the closed geochemical land area, as well as for mountain valleys and the lowland locality.

It is now possible to develop local programs for protecting the environment for each Tashkent industrial zone and later amalgamation thereof into a common program.

THE SOCIO-ECONOMIC QUESTIONS OF CONTROLLING THE QUALITY OF URBAN LAND, THE AIR BASIN, WATER RESOURCES AND SO ON occupies a special place within the framework of the work that is being done to shape an economic mechanism for implementing the local program for using Tashkent's natural resources. This question is being decided within the state control system by the city Soviet of People's Deputies and its executive committee.

While a standing functioning commission is engaged in questions of preserving the environment within the city soviet, there is no specialized section in the city ispolkom. The Commission on Social Initiatives carries out this responsibility. In the interests of effectively solving problems of improving environmental quality, it is desirable to organize such specialized sections under the city ispolkom.

At present, the environment's status is being monitored by a number of organizations: sanitary-epidemiological stations (GorSES's) of the city public-health administration, the Tashkent Center of the Uzbek Republic's Administration for Hydrometeorology and Monitoring of the Environment, the Tashkent Regional Inspectorate (RGI) for the Operation of Gas Scrubbing and Dust-Catching Installations, the Chirchik-Angren Basin Inspectorate of the UzSSR Ministry of Water Resources, Gidroingeo [Institute of Hydrology and Engineering Geology] of the UzSSR Ministry of Geology, the sanitary militia, the city



section of the Society for Conserving Nature, and so on. These organizations monitor environmental quality primarily according to the agency principle. For example, the Tashkent RGI monitors only the status and utilization effectiveness of gas-scrubbing and dust-catching installations, the Chirchik-Angren Basin Inspectorate the quality of surface water, and Gidroingeo the quality of underground water. All these organizations, naturally, are directly subordinate to the corresponding ministries and agencies and, unfortunately, do not have their own subunits in the city ispolkom system.

Enterprises of many branches of the economy, which are subordinate to tens of ministries and agencies, have been located on Uzbek SSR land. They can be divided into three groups in regard to economico-juridical responsibility for protecting the environment. The first includes enterprises for which standards of maximum permissible discharges (PDV) have been established and which have all the objective prerequisites for their observance. The second group is formed by enterprises for which normatives temporarily agreed upon (VSV's) have been established. A whole set of measures for the juridical responsibility specified by legislation has been disseminated to these groups for cases of violation of the established standards.

Enterprises of the first and second groups are sited basically in the Fergana and Chirchik-Angren valleys and the basin of the Zarafshan River. The third group includes enterprises and institutions of local industry, domestic services and municipal services which for various reasons do not have PDV or VSV standards. In accordance with Article 18 of the Law On Protecting the Atmosphere, harmful effects of the atmosphere for which there are no appropriate standards established can be permitted in exceptional cases by authorization of the Uzbek Administration of Hydrometeorology and Monitoring of the Environment, which has been specially empowered for this purpose.

If pollution of the atmosphere causes damage of a local nature, sanctions must be imposed in the amount needed for eliminating the damage inflicted and for improving the environment's sanitation. If such harm is inflicted repeatedly or regularly and the enterprise does not take the necessary steps to eliminate it, a sort of ECOLOGICAL TAX must be introduced, that is, a system of mandatory periodical payments equal to the amount spent to sanitize the environment.

In order to rationalize nature-conservation activity, it is especially important to improve organizational forms for control, financing and supplying and equipping natural-resources utilization programs. If the preparation of separate (local, urban, oblast, republic and so on) programs are taken as a basis, then adding them up will give the republic as a whole the amount of financial and production activity for the plan period.

The production and financing tasks under five-year plans for the ministries ensue from approved republic programs for natural-resources utilization. When necessary, RESOURCES PROGRAMS for the various most important types of natural resources, such as land, water and others, are developed within the system of republic programs. They are associated with the country's resources programs and with the system of regional programs.

Republic resource programs, in comparison with programs for use of natural resources, are distinguished by great dynamicity, and they make it possible

to connect up forecasts, plans and the practical activity of the branches or of national-economic complexes.

All the programs, depending upon their final purpose, can be broken down into lower ones, being transformed, in the final analysis, into sets of nature-conservation measures that are tied to the corresponding enterprises, communities, land users, water-resources activities, logging camps, and so on. For this purpose, a TREE OF OBJECTIVES of the programs is made up.

As a start, we examine a variant of a tree of objectives of the LAND-USE PROGRAM.

The purpose of the land-use system is to provide for a more effective system for the reproduction and exploitation of land resources, taking the economy's long-range interests into account. Realization of this purpose requires the development and implementation of three subprograms: the first is to insure rational scales of productive use of farmlands; the second is the reproduction of agricultural land; and the third is to provide an aggregate of authentic and necessary information about the natural, economic and legal principles about farmland and its national-economic value (an economic evaluation). Each subprogram is provided with second-level goals (requirements goals), and then third-level goals (guidance of the activity) will follow. The "splitting" process can be continued until tasks of such complexity will be formed that only specialists can solve them.

Take, for example, such parameters in the structure of specific land-use programs as the administrative-legal system and economic evaluation. The first assumes the establishment of definite juridical norms and requirements for the operation and for reproduction of the land inventory and the conservation and rational use of land, down to a prohibition on the withdrawal of land for nonagricultural needs.

However, the facts indicate that in solving questions of making insufficiently rational use of the land asset, only administrative-legal statutes are relied upon. In addition thereto, active economic measures that are based upon an evaluation of the land are necessary. These two parameters are decisive in providing a more effective system for reproduction and operation of the republic's farmland.

The following types of economic evaluations can be introduced as applicable to practical problems of organizing to make effective use of the land and of preserving it: one is for optimal use of land in agricultural production, the other is for the withdrawal of land from the agricultural turnover. The latter is defined in two variants: for the draft-plan stage of calculations (design of the enterprises that will operate the land resources), and for the stage of practical realization of the design solution (the ability to make payment for land use).

In developing long-range specific-purpose programs for land use, wider use of economic evaluations of land resources at the design stage is recommended. These evaluations presuppose central national-economic proportions for distributing land resources among branches of the national economy.

As is known, a system of SCIENTIFICALLY SUBSTANTIATED STANDARDS is of the greatest importance in the long-range plan for developing the national economy. In the area of controlling natural-resources utilization, the use of three types of standards for quality of the natural-resources potential is proposed. The first is the level of requirements for purity and diversity of the natural environment that is optimal in regard to medico-biological criteria. The second reflects the minimal permissible level of medico-biological parameters of the environment's quality, under which no irreversibly destructive consequences for man and nature arise. Both types of standards form an initial information base for developing natural-resources utilization programs and resources programs. The third type of standard--the level of requirements for environmental quality for a given plan period that is optimal for the set of socio-ecological conditions--is determined during the development of the programs and is one of the results of their realization.

On the whole, land areas are withdrawn for nonagricultural needs according to definite standards, but these do not always consider the region's specifics of land use. For example, for constructing and expanding urban settlements, the specific land-intensiveness per urban resident of the country is almost 3-fold that of Uzbekistan. According to certain forecasts, this indicator for the country will approximate the current one for Uzbekistan. Based upon this, the total requirement of urban construction for land areas must in the long term be set in an amount that considers the specific land intensiveness per urban resident at the given time.

Research that has been performed indicates that the redistribution of farmland among various nonagricultural land users that has occurred in recent years correlates closely with development of the economy and increase in the republic's population. Based upon these studies, forecast values have been determined for withdrawals of all crop land and irrigated pasture for the long term.

According to calculations, the economic evaluation of irrigated pasture during selection of the variant for withdrawing it from agricultural turnover in suburban vegetable-growing farms of Tashkent varies from 16,000 to 25,000 rubles per hectare, while land occupied by plants and vineyards many years old is from 40,500 to 50,000 rubles. When it is considered that, under this methodics, irrigable land is evaluated on the basis of the rental evaluation of the land, which takes shape from differential rent I and II, then, because of the closeness of the agricultural output to the main consumer--the republic's capital--and because of the intensity of the farming, these lands can be considered more valuable than other farmland. Consequently, knowing the forecast amounts of land withdrawals and the economic evaluation in choosing the variant for withdrawing them, this must be considered during the development of resources programs and the natural-resources utilization program. The singling out of these indicators will help to protect and to make rational use of irrigable land, to stimulate the industrial branches that need land sections, to develop those designs that will permit minimal withdrawal of crop land.

The development and realization of the land-use program, taking the economic evaluation of the land into consideration, are necessary, primarily for bringing order into the withdrawal of land for nonagricultural needs, for

improving economic incentives and the cost accounting of enterprises, and for coordinating the natural-resources utilization program with the national economic program.

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